Specification Sheets for

Direct Expansion & Tempered Water

Plus Controls & Accessories

L-0001 LB-01 Rev. 20090327
Replaces LB-03 and LB-15

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Specification Sheets for
Direct Expansion & Tempered Water
Plus Controls & Accessories

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StowAway Turbo Self-Contained Units
Optimized Marine Design

STQ14K StowAway Turbo shown with optional Sound Shield

Rust-free molded composite drain pan designed for quick removal of condensate water. Innovatively designed sloped channels route water rapidly to a choice of three easy-to-plumb drain locations.

Experience better noise reduction with a built-in cushion system that minimizes vibration to the deck. Additionally, the innovative mounting clips utilize vibration isolators. As shown in the photo, the optional molded compressor sound shield maximizes noise containment.

The enclosed motor eliminates overhang, and the high-velocity blower can be rotated through 270° with one adjustment screw. The unit's unique inlet ring is designed to optimize air flow and ensure that the height of the unit does not increase when the blower rotates.

Key Benefits

- Up to 85% reduction in standing water in the drain pan.
- Up to 27% reduced amperage.
- Up to 21% increased capacity.
- No blower motor overhang reduces depth.
- Average installation time reduced by 10–20 minutes.
- Compatible with SMX II and Q-Logic controls.
- Up to 50% noise reduction with optional sound cover.

Easy-to-install sound covers reduce noise by up to 50%

These compact, easy-to-install sound covers are available for all StowAway Turbo models. The cover fits over the compressor, providing a 3- to 5-dB noise reduction—which is about a 50% drop in what the human ear can perceive. Installation takes just minutes and all mounting hardware is included.

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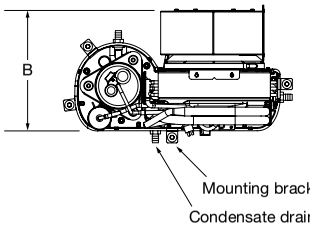
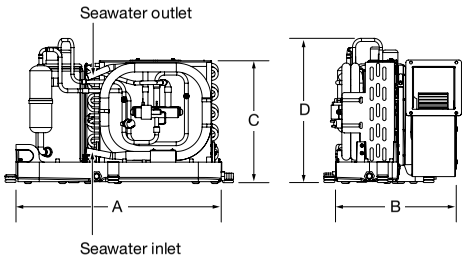
Technical Specifications for StowAway Turbo

Model	STQ6		STQ8			STQ10			STQ12			STQ14			STQ16		
Capacity (BTU/Hr)	6,000		8,000			10,000			12,000			14,000			16,000		
Voltage (VAC)	115	220-240	115	230	220-240	115	230	220-240	115	230	220-240	115	230	220-240	115	230	220-240
Cycle (Hz)/Phase (Ph)	60 1	50 1	60 1	60 1	50 1	60 1	60 1	50 1	60 1	60 1	50 1	60 1	60 1	50 1	60 1	60 1	50 1
Full Load Amps (FLA) cool	3.8	2.1	5.4	2.6	3.6	6.0	3.1	3.4	6.8	3.4	3.7	7.8	4.2	4.4	9.4	4.6	4.5
Full Load Amps (FLA) heat	5.0	2.8	7.0	3.4	4.4	8.3	4.2	4.3	9.4	4.7	4.7	11.3	5.4	5.8	12.4	6.2	5.8
Locked Rotor Amps (Comp)	29	11	40	19	20	42	21	16.9	53	26	22.2	58	33	22	59	34	32
K.V.A. (Kilo-Volt-Amps)	0.6	0.7	0.8	0.8	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.3	1.3	1.4	1.4	1.4	1.4
Max. Circuit Breaker (Amps)	15	9	21	10	13	25	14	13	31	15	15	33	18	18	40	21	19
Min. Circuit Ampacity (Amps)	9	5	12	6	8	14	8	8	17	9	8	19	10	10	23	12	11
Refrigerant R-22 (oz/g)	8 227	8 227	10 283	10 283	10 283	10.5 298	10.5 298	10.5 298	11 312	11 312	11 312	13 369	13 369	13 369	13 369	13 369	13 369
Unit Dimensions (in/cm)																	
Height – Evaporator (C†)	10.8	27.4	10.8		27.4	12.2		31.0	12.2		31.0	12.9		32.8	12.9		32.8
Height – Compressor (D†)	12.2	31.0	12.2		31.0	13.0 32.9	13.0 32.9	14.2 36.1	13.9 35.4	13.9 35.4	12.8 32.5	13.9 35.4	14.2 36.1	14.2 36.1	13.1 33.2	14.3 36.3	13.7 34.8
Height – w/opt. Sound Cover	13.0	33.0	13.0		33.0	13.5 34.3	13.5 34.3	15.0 38.1	15.0 38.1	15.0 38.1	13.5 34.3	14.5 36.8	15.0 38.1	15.0 38.1	14.5 36.8	15.0 38.1	14.5 36.8
Width (A†)	17.6	44.7	17.6		44.7	20.4		51.8	20.4		51.8	21.4		54.4	21.4		54.4
Depth (B†)	10.7	27.2	10.7		27.2	12.4		31.5	12.4		31.5	13.3		33.8	13.3		33.8
Min. Duct Size Dia.	4	10.2	5		12.7	6		15.2	6		15.2	7		17.8	7		17.8
Min. SA Grill (sq in/cm)	32	206	48		310	60		387	70		452	76		490	80		523
Min. RA Grill (sq in/cm)	64	413	80		516	100		710	130		839	144		929	160		1032
Net Weight (lbs/kg)	39.6 18.0	40.4 18.3	43.8 19.9	43.6 19.8	43.0 19.5	48.8 22.1	48.8 22.1	52.8 24.0	54.4 24.7	55.0 24.9	53.4 24.2	60.2 27.3	61.2 27.8	59.8 27.1	59.4 26.9	60.8 27.6	63.4 28.8
Gross Weight (lbs/kg)	49.6 22.5	50.4 22.9	53.8 24.4	53.6 24.3	53.0 24.0	58.8 26.7	58.8 26.7	62.8 28.5	64.4 29.2	65.0 29.5	63.4 28.8	70.2 31.8	71.2 32.3	69.8 31.7	69.4 31.5	70.8 32.1	73.4 33.3

Notes:
1) Add a 'C' or 'CK' after the capacity designator for 230V or 220-240V/50Hz units respectively. Examples STQ8 = 115V, STQ8C=230V, STQ8CK=220-240V/50Hz
2) BTU and electrical data are based on a 45°F / 7.2°C evaporator and 100°F / 37.8°C condenser in cool mode, and a 45°F / 7.2°C evaporator and 130°F / 54.4°C condenser in heat.
3) Note: 60Hz units must not operate at 50Hz and 50Hz units must not operate at 60Hz.
4) Refrigerant charges shown are for R22. Alternative "Environmentally Friendly Green Gas" refrigerants available on request.
5) Electric box is remote mounted up to 34" (86cm) away from compressor. E-box dimensions are 2.7" (6.9cm) x 6.5" (16.5cm) x 8.8" (22.4cm).

† Refers to callouts shown in drawing below.





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L–2502B Rev. 20080801

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NEW!

Dometic EnviroComfort Kit

Climate Control at the Touch of a Button

Dometic EnviroComfort
15,000 BTU/hr Kit

Enjoy ideal temperatures in your boating environment year-round with Dometic's EnviroComfort air conditioning systems. We offer a wide range of capacities from 5,000 to 15,000 BTU/hr, so you can size the system to suit your boat for ultimate cooling and heating comfort. All EnviroComfort models use R-417A refrigerant, an environmentally safe gas.

The EnviroComfort kit includes everything needed for a professional installation on boats with or without an existing air conditioning system.

EnviroComfort units use high-velocity blowers that eliminate blower-motor overhang for a smaller installation footprint. For flexibility in connecting to ductwork, the blower is rotatable to either a horizontal or vertical position. The compact, space-saving design is contained in a stainless-steel drain pan, and the pre-installed return-air filter is easily removable and cleanable.

For system operation, EnviroComfort kits include a compact Dometic digital-display control. For added installation convenience, the plastic electrical box can be mounted remotely.

Key Benefits

- Cools and heats.
- High velocity, rotatable blower for horizontal or vertical installation.
- Green gas (R-417A).
- Compact Dometic digital-display control.
- Plastic remote electrical box for convenience in mounting.
- Stainless-steel drain pan.
- Pre-installed return-air filter, easily removable and cleanable.
- Small, compact, space-saving design.
- Complete kit - All pieces, parts, and pumps (from seawater intake to supply-air grille).
- Optional dual-duct kit for models 6.5K BTU/hr and higher (details on reverse side).
- Available capacities (in BTU/hr): 5,000, 6,500, 9,000, 11,000, and 15,000.
- Replaces Cabin Mate.

ISO 9001:2000

L–2628 Rev. 20080829

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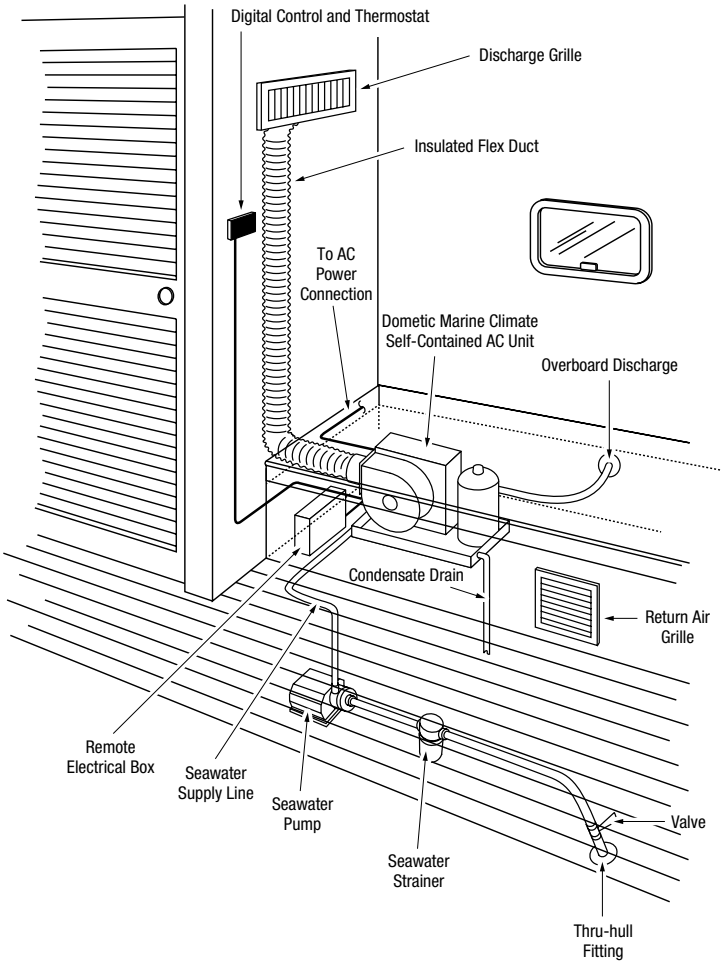
Technical Specifications for Dometic EnviroComfort

Model[1]	ECD05	ECD06.5	ECD09	ECD11	ECD15
Capacity (BTU/hr)	5,000	6,500	9,000	11,000	15,000
Power (Volt/Hz/Ph)	115/60/1	115/60/1	115/60/1	115/60/1	115/60/1
Full Load Amperage - Cool	3.9	5.4	6.0	6.8	9.4
Full Load Amperage - Heat	5.1	7.0	8.3	9.4	12.4
Locked Rotor Amperage	29	40	42	53	59
Refrigerant type	R-417A	R-417A	R-417A	R-417A	R-417A
Control type	Dometic Digital	Dometic Digital	Dometic Digital	Dometic Digital	Dometic Digital
Dimensions (+/- 0.5" or 13mm)					
Height (in/mm)	11.25/285.8	12.25/311	13.00/330	14.25/362	14.25/362
Width (in/mm)	17.83/452.9	13.25/337	14.25/362	14.25/362	14.25/362
Depth (in/mm)	8.92/226.6	17.75/451	18.25/464	18.25/464	19.88/505
Connections					
Sea Water (in/mm)	0.63/16	0.63/16	0.63/16	0.63/16	0.63/16
Estimated Weight					
Net weight (lbs/kg)	56/25.4	61/27.7	70/31.8	71/32.2	82/37.2
Ship weight (lbs/kg)	63/28.6	78/35.4	87/39.5	88/40.0	92/41.7



Dual-Duct Kit

For applications requiring an additional air outlet, Dometic's dual-duct kit is available EnviroComfort models with BTU/hr capacities of 6.5K and higher.

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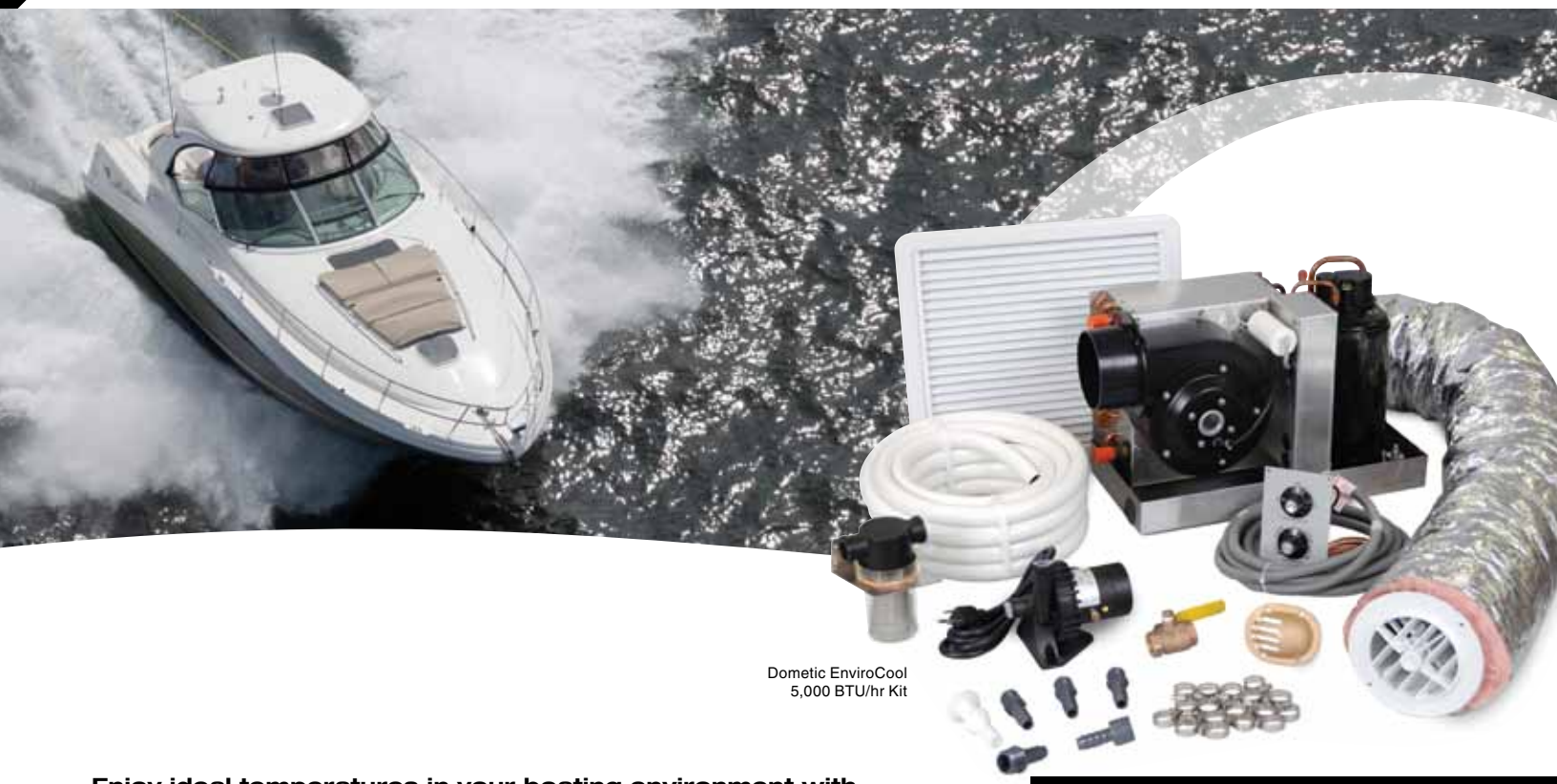
L–2628 Rev. 20080829

NEW!

Dometic EnviroCool Kit

Climate Control at the Touch of a Button



Dometic EnviroCool
5,000 BTU/hr Kit

Enjoy ideal temperatures in your boating environment with Dometic's EnviroCool marine air conditioning systems. We offer a wide range of BTU capacities from 5,000 to 15,000 BTU/hr to allow you to size your system for ultimate cooling. The EnviroCool series uses R-417A refrigerant, an environmentally safe green gas.

The EnviroCool kit includes everything needed for a professional installation on boats with or without an air conditioning system.

EnviroCool units use high-velocity blowers that eliminate blower-motor overhang for a smaller installation footprint. For flexibility in connecting to ductwork, the blower is rotatable to either a horizontal or vertical position. The compact, space-saving design is contained in a stainless-steel drain pan, and the pre-installed return-air filter is easily removable and cleanable.

For system operation, EnviroCool uses a two-knob mechanical switch for reliable control over air conditioner functions.

Key Benefits

- High velocity, rotatable blower - either horizontal or vertical positions.
- Green gas (R-417A).
- 2-knob mechanical control.
- Stainless-steel pan.
- Pre-intalled return-air filter, easily removable and cleanable.
- Small, compact space-saving design.
- Complete kit - All pieces, parts, and pumps (from seawater intake to supply-air grille).
- Replaces Cool Mate and Zephyr.
- EnviroCool - ***cool only*** - Model ECM (EnviroCool Mechanical).
- Optional dual-duct kit for 6.5K BTU/hr and up models (details on reverse side).
- Available capacities (in BTU/hr): 5,000, 6,500, 9,000, 11,000, and 15,000.

ISO 9001:2000

L–2631 Rev. 20080829

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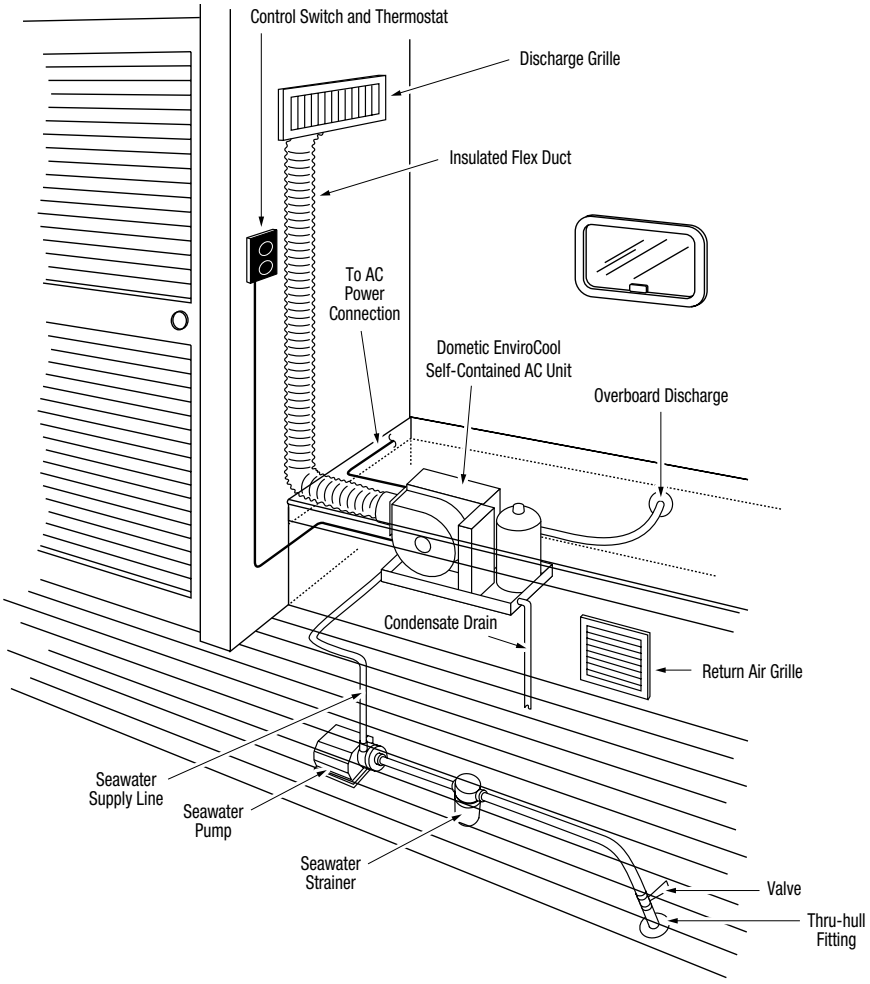
Technical Specifications for Dometic EnviroCool

Model[1]	ECM05	ECM06.5	ECM09	ECM11	ECM15
Capacity (BTU/hr)	5,000	6,500	9,000	11,000	15,000
Power (Volt/Hz/Ph)	115/60/1	115/60/1	115/60/1	115/60/1	115/60/1
Full Load Amperage - Cool	3.9	5.4	6.0	6.8	9.4
Locked Rotor Amperage	29	40	42	53	59
Refrigerant type	R-417A	R-417A	R-417A	R-417A	R-417A
Control type	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical
Dimensions (+/- 0.5" or 13mm)					
Height (in/mm)	11.25/285.8	12.25/311	13.00/330	14.25/362	14.25/362
Width (in/mm)	17.83/452.9	13.25/337	14.25/362	14.25/362	14.25/362
Depth (in/mm)	8.92/226.6	17.75/451	18.25/464	18.25/464	19.88/505
Connections					
Sea Water (in/mm)	0.63/16	0.63/16	0.63/16	0.63/16	0.63/16
Estimated Weight					
Net weight (lbs/kg)	54.5/24.7	59.5/26.9	68.5/31.1	69.0/31.3	80.0/36.3
Ship weight (lbs/kg)	61.5/27.9	76.5/34.7	85.5/38.8	86.0/39.0	90.0/40.8



Dual-Duct Kit

For applications requiring an additional air outlet, Dometic's dual-duct kit is available for 6.5-15K BTU/hr EnviroCool models.

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L–2631 Rev. 20080829

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Cuddy dc Air Conditioning Kits

Easy & Affordable Cold Air for Smaller Cabins

Cuddy dc 3,500 BTU/hr Kit

The Dometic Cuddy dc is a compact 3,500 BTU/hr cool-only air conditioner designed to work with 12 Volt power systems. Energized by a dedicated bank of batteries and a dedicated power module, the Cuddy dc makes your small cabin a refuge from the heat and sun. Compact—about the size of a typical battery box—this low-profile unit easily fits beneath a V-berth or in a storage area below deck. The Cuddy dc uses R-417A, a globally accepted, environmentally safe refrigerant.

Your dedicated 12V DC battery bank powers the system via the Dometic Dedicated Power Module (DPM). Two ABYC-approved wires (sized properly for your unique installation) run from the dedicated battery bank to the DPM. Easy-to-use polarized plugs connect the DPM to the seawater pump and the Cuddy dc unit. Optional cables are available for longer runs if your setup requres more than the standard 4.5' (1.37m) cable included with the kit.

To operate the system, the Cuddy dc uses a simple two-knob mechanical control. Since it draws no power itself, the mechanical control maximizes runtime and efficiency. The Cuddy dc system (compressor, blower, and pump) draws about 29 amps of DC power under normal operating conditions. Supplemental DC power comes to you via engine power (if available) or via shore power through a battery charger.

Key Benefits

- Designed for small cabins.
- Operates via simple 12V DC connections.
- Compact—about the size of a battery box.
- High-velocity blower with split capacitor for greater airflow.
- Stainless-steel chassis.
- Simple two-knob mechanical control maximizes efficiency and runtime.
- Minimal DC draw (about 29 DC amps total).
- No genset needed.
- Air distribution kits available.

ISO 9001:2000

L–2425D Rev. 20080829

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Technical Specifications for Cuddy dc Kits

Component	Capacity	Dimensions			Weight	Refrigerant	Electrical (Compressor, Blower, and PML 150 Pump)
		Height	Width	Depth			
Cuddy dc Unit	3,500 BTU/hr	9.25"/235mm	15.0"/381mm	8.0"/204mm	29lb./13.2kg	R-417A (Globally accepted, environmenstally safe)	~29 amps[1] (12V DC)
Dedicated Power Module (DPM)	N/A	5.13"/130mm	10.0"/254mm	2.67"/68mm	3lb./1.3kg	—	
Control	N/A	5.5"/140mm	3.25"/83mm	2.75"/70mm	—	—	
Seawater Pump	150 GPH	2.75"/70mm	3.5"/89mm	4.75"/121mm	1lb./0.46kg	—	

Notes:

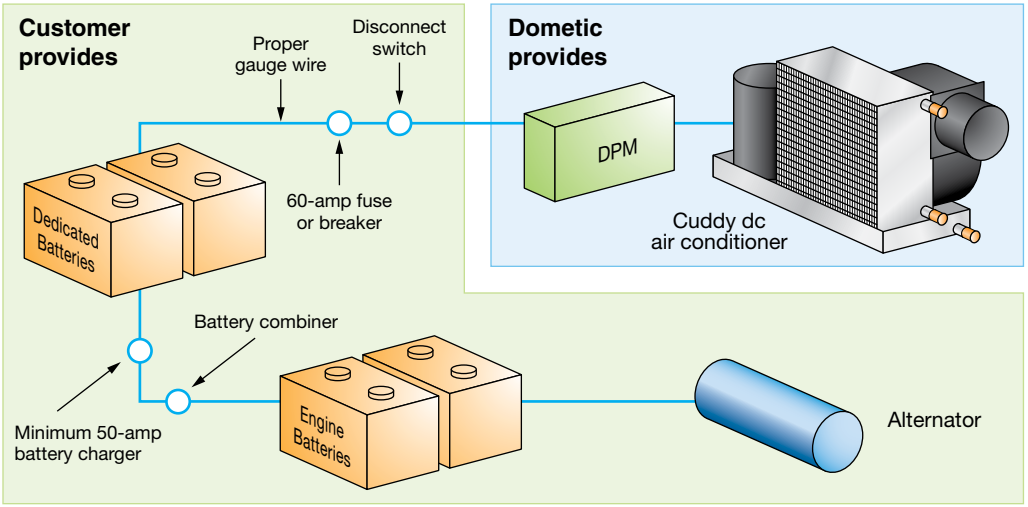
[1] Actual load is dependent upon humidity, seawater temperature, battery condition, voltage, and electrical connections.

Cuddy dc Kits & Accessories

Marine Air Cuddy dc – 12V DC system	Cooling-only unit, DPM, 150 GPH seawater pump, control, polarized plugs
Extension cable	DPM to Unit - 10' (3m)
Extension cable	DPM to Unit - 20' (6m)
Extension cable	PLM 250 to Unit - 10' (3m)
Air Distribution Kit – Black	3" discharge grille - black; 8" X 8" (204mm X 204mm) return grille; 10' (3m) of 3" duct
Air Distribution Kit – White	3" discharge grille - white; 8" X 8" (204mm X 204mm) return grille; 10' (3m) of 3" duct

Dedicated Power Module
Our Cuddy dc kit includes a Dedicated Power Module (DPM) that has been Dometic-tested to handle the air conditioning load.

Batteries & Battery Charger
You must provide the right type of batteries and the right type of battery charger. Use only Deep-Cycle AGM or Gel-Cell batteries. (Do not use Wet-Cell batteries.) The battery charger must be rated for the type of battery you use. The Cuddy dc requres a dedicated battery bank. To maximize runtime, we recommend using at least two batteries in the bank. (The more cells, the longer the runtime.) All batteries used must be of the same type (either all AGM or all Gel Cell), the same capacity, and the same age.



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L–2425D Rev. 20080829

Dometic Cruisair®

Keep Cool On Deck With The Breeze

For Flybridge, Cockpit & On-Deck Installations

SLX16 shown

The Breeze delivers high-velocity cold air (or HOT!) onto the bridge, cockpit, or deck using an innovative horizontal compressor. The 16,000 BTU/hr. self-contained package stands just eight inches (203mm) high and is easily mounted in confined spaces like flybridge dashboards and consoles.

Also available is a 16,000 BTU/hr. evaporator connected to a remote condensing unit below decks. A third configuration is designed for boats equipped with a chiller system.

All Breeze systems are reverse-cycle, blowing warm air on chilly days, thereby extending your cruising season. All units are designed for easy, professional installation on new boats and older vessels.

The Breeze system features an oversized four-row evaporator coil for excellent heat removal under low fan-speed conditions. A highly efficient blower reduces power consumption, and the blower flows to two outlets.

Key Benefits

- Innovative horizontal compressor requires only 8" (203mm) of height for installation.
- Flybridge, cockpit and on-deck installations.
- 16,000 BTU/hr (115V/60Hz) or 13,000 BTU/hr (230V/50Hz) in a high-velocity unit.
- 304-grade stainless-steel drain pan for long service life.
- Welded 5/8" diameter stainless-steel condensate drains for excellent water removal.
- Condensate contained under evaporator to minimize sloshing and remove water rapidly.
- Highly efficient blower reduces power consumption.
- Oversized four-row evaporator coil for excellent heat removal under low fan-speed conditions.
- Remote electrical box with 5' (152cm) harness.
- Dual blower outlets.
- Special coating on blower and housing resists corrosion and deterioration from salt air.

ISO 9001:2000

L–2619 Rev. 20080530

Cruisair®

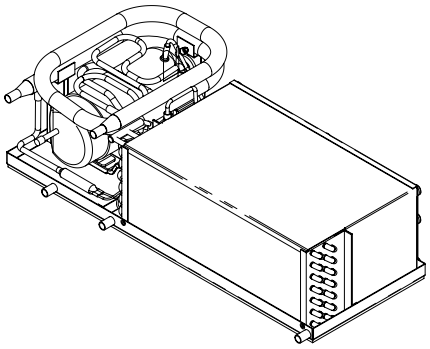
Technical Specifications for The Breeze

Unit Type	Self-Contained Unit		Evaporator	Air Handler
Model Number	SXL16	SXL13CK	EDL16, EDL16C	ATL16, ATL16Z
BTU/hr.	16,000	13,000	16,000	
Height	8" (203mm)		7.4" (188mm)	
Width	30.25" (769mm)		22.25" (566mm)	
Depth	14" (356mm)		11" (280mm)	
Weight	70 lbs. (32 kg.)		19 lbs. (9 kg.)	21 lbs. (10 kg.)
Refrigerant	R22	R417a	N/A	
Electrical	115V 60Hz	230V 50Hz	N/A	
Cool	11.0 amps*	4.4 amps*	N/A	
Heat	14.6 amps*	5.7 amps*	N/A	
LRA	60 amps	26 amps	N/A	
Blower Amps	N/A		115V 60Hz 230V 60Hz 230V 50Hz	2.0 amps 0.86 amps 0.62 amps

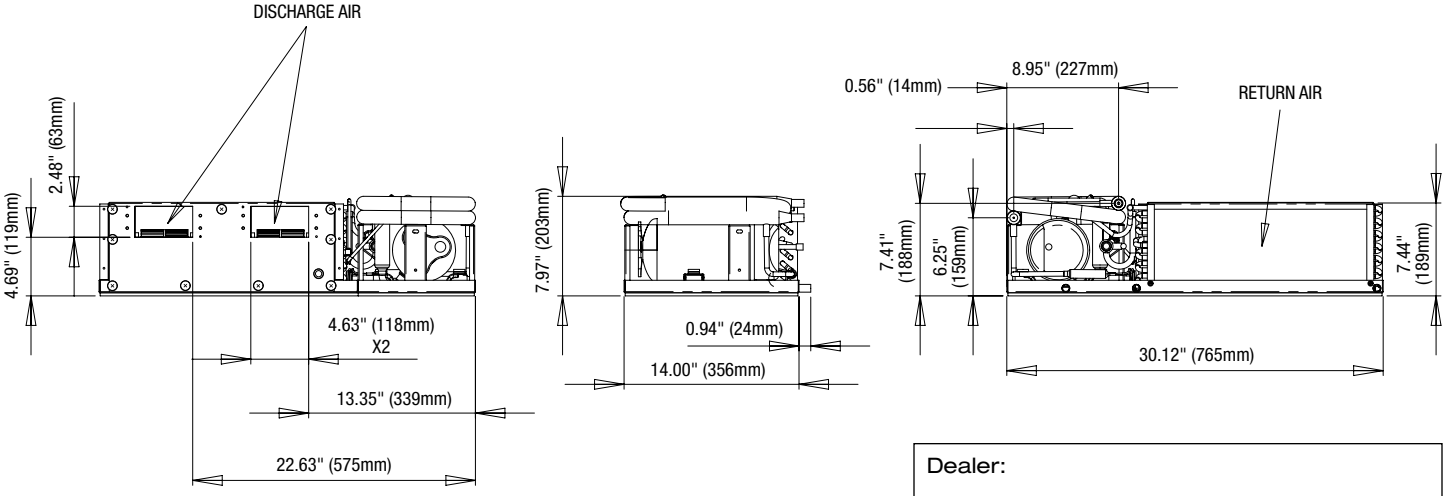
* Amps are total amp draw for the self-contained unit.

Available Custom Air Flow Accessories:

- 229000005 PLNM AMN RA VLD16/2@5" Side Discharge Plenum
- 229000006 PLNM AMN RA VLD16/2@5" Upward Discharge Plenum
- 229000007 PLNM AMN RA VLD16/2@5" Downward Discharge Plenum
- 228700089 Ring ABS trans 5"-OB Short Flange



Dimensions for The Breeze



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Environmentally Responsible

L–2619 Rev. 20080530

Dometic Cruisair®

StowAway Self-Contained Units

18K & 24K BTU/hr Capacities

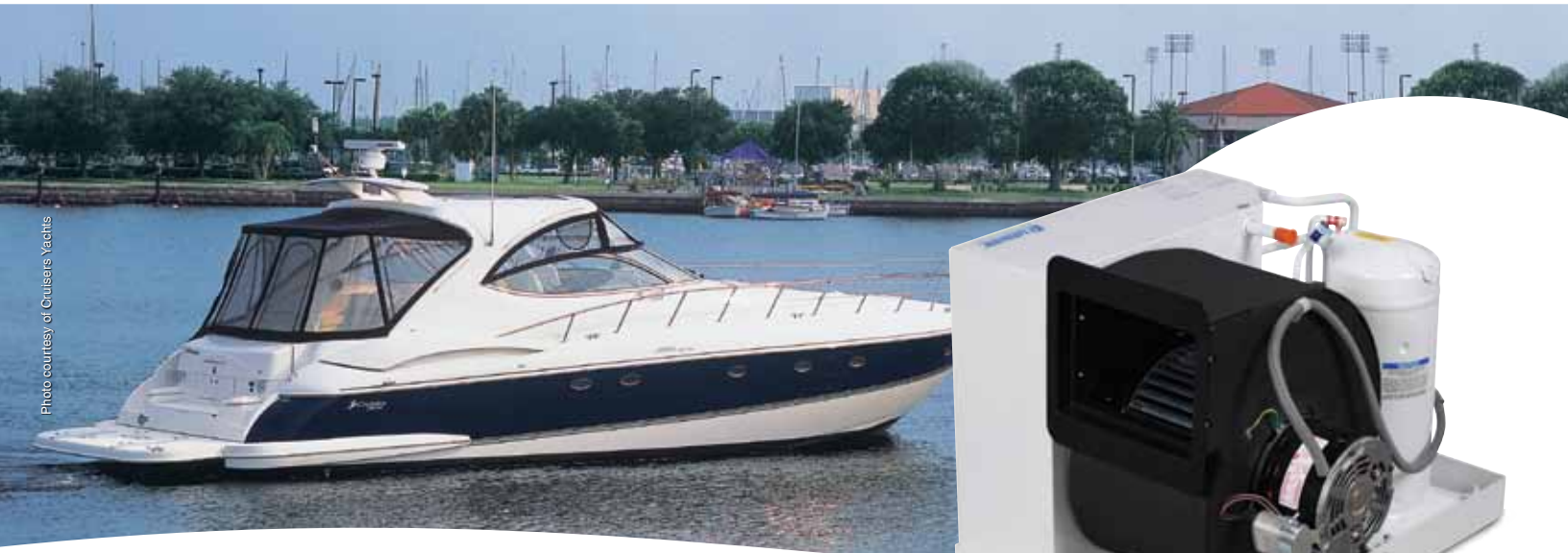

Photo courtesy of Cruisers Yachts

SQF24C/1 shown

The StowAway series of self-contained marine air conditioners offers 18K-24K BTU/hr of cooling and heating. All models offer direct expansion operation in a compact, low-profile unit, with a seawater-cooled condenser and a choice of controls.

StowAway units are designed for installation under a settee or berth, in a locker or cabinet, or other convenient location. The return-air grille should be located close to the unit, with the discharge air ducted to a supply-air grille high in the cabin.

The 18K BTU/hr model features a high-efficiency rotary compressor, which offers quiet operation, less weight, and low starting and running power requirements. The 24K BTU/hr model uses an efficient scroll compressor.

The unique seawater condenser design places it in the blower shroud to minimize unit size. The condenser coil is constructed of spiral fluted cupronickel encased in a copper shell. The evaporator coil has rifled tubing and lanced fins to increase heat transfer between the cabin air and the refrigerant.

The squirrel-cage blower is insulated to prevent secondary condensation and reduce noise. The blower can be rotated to almost any angle for flexibility in installation.

Two different control systems are available with StowAway units. SHF units use a three-knob switch assembly. SQF models include the Q-Logic power/logic box and temperature sensor for use with Qht or Q3 displays. Controls are sold separately.

Key Benefits

- 18,000 and 24,000 BTU/hr capacity models.
- Low-profile, compact, self-contained units.
- Reverse cycle for heating and cooling.
- High-efficiency compressors.
- 115V and 230V, 60Hz, and 220-240V, 50Hz units available.
- Includes a return-air filter and remote electric box.
- High efficiency “HV” blower standard on 18K model.

ISO 9001:2000

L–2663 Rev. 20090109

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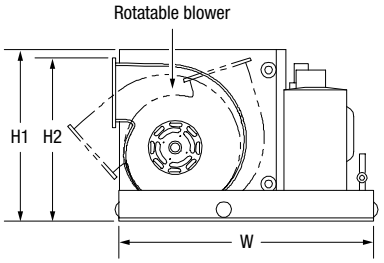
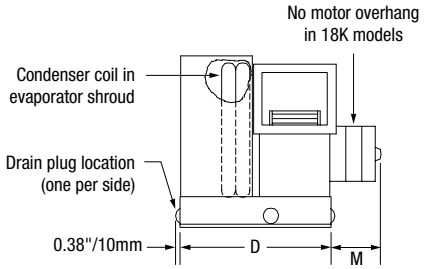
StowAway units are designed for easy installation and serviceability. In addition to the basic StowAway unit, the following components are required to complete the installation and are sold separately: seawater cooling system (pump, through-hull, strainer, seacock, hose, etc.), air-distribution system (duct and grilles), hose adapter and controls. StowAway units are available in 115VAC or 230VAC 60Hz models, as well as full-performance 240VAC 50Hz models.

Technical Specifications for StowAway Series

Model[1][2]	SQF18*-2			SQF24*-2	
Capacity BTU/hr[3]	18,000			24,000	
Voltage (VAC)	115	230	240	230	240
Frequency (Hz)[4]	60	60	50	60	50
Full Load Amps (FLA) Cool	11.2	5.3	5.4	7.1	8.1
Full Load Amps (FLA) Heat	15.5	7.2	7.4	9.7	10.6
Locked Rotor Amps (Comp)	79	38	30	54	56
Max. Circuit Breaker (Amps)	45	20	20	35	40
Min. Circuit Ampacity (Amps)	27	14	14	21	24
R-22 Refrigerant (oz/kg)[5]	17.0/482			16.0/454	
Unit Dimensions (in/mm)					
Height, Evaporator (H1)	14.0/356			18.0/457	
Height, Blower (H2)[6]	15.5/394			19.3/489	
Width (W)	21.0/533			24.8/629	
Depth (D)	12.0/305			15.3/387	
Motor Overhang (M)	N/A[7]			3.5/89	
Min. Duct Size Diameter	7/178			8/204	
Min. Supply Grille Area (in^2/cm^2)	100/645			140/903	
Min. Return Grille Area (in^2/cm^2)	200/1290			240/1548	
Net Weight (lbs/kg)	74/33.6			120/54.4	
Gross Weight (lbs/kg)	85/38.6			130/58.9	



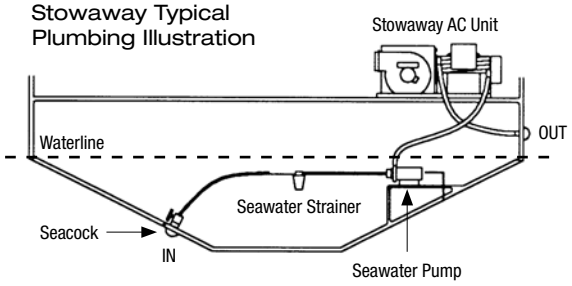


Notes:
[1] SQF units indicate Q-Logic control; SXF units: SMXII control; SHF units: 3-knob mechanical control.
[2] 230V/60Hz model numbers end in "C", and 240V/50Hz model numbers end in "CK" (i.e. SQF7C-2 or SXF12CK-2).
[3] Capacity and electrical data are based on ABYC ratings. Cool mode: 45°F/7.2°C evaporator, and 100°F/37.7°C condenser. Heat mode: 45°F/7.2°C evaporator, and 130°F/54.4°C condenser.
[4] Units must only be operated at designated freqency. Contact Dometic if dual 50/60Hz unit is required.
[5] R-417A environmentally-safe "green" gas is available.
[6] Blower can be rotated downward to below the height of the evaporator.
[7] HV blowers have internal motors.

Interpreting Model Numbers

S	Q	U	F	24	C	– 2
StowAway	Control Q: Q-Logic Control X: SXMII Control H: 3-knob Control	Blower Type No Letter: Standard Blower U: High-Efficiency "HV" Blower	Compact "F" Type	Capacity (x 1000 BTU/hr)	Power No Letter: 115V/60Hz C: 230V/60Hz CK: 240V/50Hz	Model Revision

Stowaway Typical Plumbing Illustration



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L–2663 Rev. 20090109

Dometic Cruisair®

R Type Condensing Units

5K to 16K BTU/hr Capacity Range

RX12 condensing unit shown

R type remote condensing units are the next generation of seawater-cooled, reverse-cycle heat pumps for cooling and heating in marine applications. Small R type units are available in capacities from 5,000 to 16,000 BTU/hr.

These condensing units can be installed with up to two Cruisair cooling units, where the total capacity is equal to the condensing unit capacity. In the cooling mode, full performance is available in seawater up to 90°F (32°C). In reverse-cycle heating, they will provide heat in seawater as low as 40°F (4.4°C).

The new R type has a number of improvements over the original "F" type condensing units. A one-piece chassis/pan has a smaller footprint, with two 1/2" FPT drain connections. New hold-down brackets secure all four corners and allow for easier installation and removal. The one-piece electrical box with 3' (0.9m) cable can be remotely mounted. (RN models have a secondary box). Additional service ports have been added for ease of charging and servicing. The R type unit is designed as a drop-in for the older F and J type with few modifications.

Type R models are designed for installation in the vessel's engine room or other mechanical space. It is not affected by moisture, normal vibration, or ambient temperatures up to 140°F (60°C). No ventilation is required.

Three different models are available, depending on what type of control is desired. "R" use the SA3 3-knob rotary switch assembly, "RX" is controlled by the SMX II microprocessor, and "RN" uses the SMX Net. SMX models include the respective

Key Benefits

- Redesigned R type unit is lighter in weight than F type.
- Service ports on refrigerant lines and base valves.
- Rubber isolation mounts on compressors.
- Condensate pan with front and rear drains.
- Corner mounting brackets designed for easy install.
- High pressure switch (SMX models also includes low pressure switch).
- Electrical box can be remotely mounted up to 3' (0.9m) from unit.
- Available with "green-gas" R-417A refrigerant.
- An additional vibration isolation kit is available.
- Ignition protected.

ISO 9001:2000

L–2431 Rev. 20081003

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SMX II or SMX Net power/logic boards. In addition, an SMXir or the new SMXht keypad/ display, a CXP connecting cable, and a TSEP temperature sensor must be purchased separately. If networking RN units, CNP network cables are also needed.

A seawater cooling system, with pump, scoop type through-hull, seacock, strainer, and overboard discharge, is also required.

Every R type unit is fully tested and pre-charged at the factory with R-22 refrigerant or R-417A "green gas". (All 50Hz "CK" models come standard with R-417A.) Installation and final charging of the system must be performed by a certified technician.

Technical Specifications for Type R Condensing Units

Model	Capacity (BTU/hr)	Power[1] Voltz/Hz/Ph	Full Load Amps		LRA[2]	MCB[3]	Connections (Male Flare)		Seawater Flow Rate (gpm/lpm)[•]	Refrigerant[4]	Weight[5] (lbs/kg)
			Cool	Heat			Discharge	Suction			
R, RX, RN5	5,000	115/60/1	5.0	6.2	28.0	15A	1/4"	3/8"	1.7/6	R-22 or R-417A	48/21.8
R, RX, RN7	7,000	115/60/1	6.2	7.7	34.0	20A	1/4"	3/8"	2.3/9	R-22 or R-417A	50/22.7
R, RX, RN7C		230/60/1	3.3	4.0	20.0	10A					
R, RX, RN7CK		220-240/50/1	3.0	3.7	16.0	10A					
R, RX, RN10	10,000	115/60/1	8.0	10.2	47.0	30A	1/4"	3/8"	3.3/13	R-22 or R-417A	60/27.3
R, RX, RN10C		230/60/1	4.3	5.5	28.0	15A					
R, RX, RN10CK		220-240/50/1	4.6	5.6	26.3	15A					
R, RX, RN12	12,000	115/60/1	8.4	11.0	50.0	30A	1/4"	3/8"	4.0/15	R-22 or R-417A	62/28.2
R, RX, RN12C		230/60/1	5.4	6.6	34.0	15A					
R, RX, RN12CK		220-240/50/1	5.4	6.4	31.0	15A					
R, RX, RN16	16,000	115/60/1	11.4	13.5	75	40A	1/4"	1/2"	5.3/20	R-22 or R-417A	63/28.6
R, RX, RN16C		230/60/1	6.2	7.3	36	20A					
R, RX, RN16CK		220-240/50/1	5.0	6.0	35	20A					

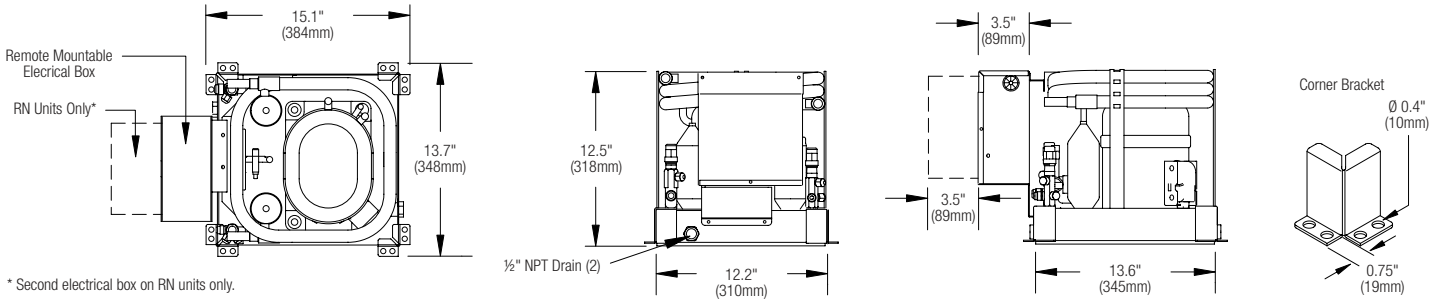
Notes:

[1] 115V, 230V, and 440V 60 Hz equipment can be operated at 100V, 200V, or 380V respectively, in a 50Hz environment. In such a 50Hz environment, performance will decrease by 17%. Full rated capacity can be obtained by specifying Cruisair "CK" equipment.
[2] LRA – Locked Rotor Amps
[3] MCB – Maximum Circuit Breaker
[4] All models are available with refrigerant R-417A. Amp draw would be the same as R-22 models listed above.
[5] Weights shown are units only. Shipping weights will be approximately 6 lbs (2.7kg) more.

• Compressor starting current will vary with voltage and is approximately 3-4 times the full-load amps.

Interpreting Model Numbers

RX	10	CK	417
Type of Control R: Rotary knob RX: SMX II RN: SMX Net	Capacity X 1,000 BTU/hr	AC Power Blank: 100/115V, 50/60Hz C: 200/230V, 50/60Hz CK: 220-240V, 50Hz only	Refrigerant Blank: R22 417: R-417A



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L–2431 Rev. 20081003

Dometic Cruisair®

Type R Condensing Units

With High Efficiency Compressors

Photo courtesy of Cruisers Yachts

RX24 condensing unit shown

Available in capacities from 20,000 to 48,000 BTU/hr, Type R remote condensing units represent the next generation of seawater-cooled, reverse-cycle heat pumps for cooling and heating in marine applications. Models up to 36,000 BTU/hr use reciprocating compressors, while the 48K units use scroll compressors.

These condensing units can be installed with up to two Cruisair cooling units, where the total cooling unit capacity is equal to the condensing unit capacity. Some applications may allow three cooling units on one condenser; contact the Cruisair Applications department for assistance in design, prior to installation. In the cooling mode, full performance is available in seawater up to 90°F (32°C). In reverse-cycle heating, the unit will provide heat in seawater as low as 40°F (4.4°C).

The high-efficiency compressors deliver full capacity at lower amperages. The newly designed, one-piece electrical box with 3' (1m) cable can be remote mounted simply by removing one screw (RN models have a secondary box). Additional service ports allow ease of charging and servicing. The one-piece chassis/pan has two drain locations, and hold-down brackets secure all four corners, allowing easier installation and removal. The Type R condenser is designed as a drop-in for the older F type, with few modifications.

R type units are designed for installation in the vessel's engine room or other mechanical space. The unit is not affected by moisture, normal vibration, or ambient temperatures up to 140°F (60°C). No ventilation is required.

Three different series of Type R units are available, depending on what type of control is desired. Standard R units utilize the SA3 3-knob rotary switch assembly, RX units are controlled by the SMX II microprocessor, and RN models use SMX Net microprocessors. The SMX units include the respective SMX II or SMX Net power/logic boards. In addition, an SMXir or the new SMXht keypad/display, a CXP connecting cable, and a TSEP temperature sensor must be purchased separately. If networking RN units, CNP network cables are also needed.

Type R condensing units are available for a variety of power systems. Please refer to the technical specifications on back of this sheet. Note that the 380-460V units will require a single-phase control circuit power feed (115V or 230V). Three-phase units are not ignition

(Continued on reverse side)

Key Benefits

- Higher efficiency compressors at lower amperages.
- Redesigned R type unit is lighter in weight.
- Service ports on refrigerant lines and base valves.
- Rubber isolation mounts on compressors.
- Condensate pan with front and rear drains.
- Corner mounting brackets designed for easy install.
- High and low pressure switches.
- Three different control options:
  - R series uses a 3-knob rotary switch assembly.
  - RX series includes an SMX II power/logic board and uses the new SMXht, SMXir or SMX II keypad/displays.
  - RN series includes an SMX Net power/logic module.
- Electrical box can be remotely mounted to deck or bulkhead up to 3' (1m) from unit.
- Available with "green-gas" R-417A refrigerant.
- Seawater coil manifolds are optional.
- Heavy-duty vibration isolators are available.

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L–2360 Rev. 20080829

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protected and must not be installed in an area where flammable vapors may be present. A seawater cooling system, with pump, scoop type through-hull, seacock, strainer, and overboard discharge, is also required.

Every Type R unit is fully tested and pre-charged at the factory with R22 refrigerant; "green gas" R-417A is also available. Installation and final charging of the system must be performed by a certified technician.

Technical Specifications for Type R Condensing Units

Model	Capacity (BTU/hr)	Power Voltz/Hz/Ph	FLA Cool	FLA Heat	LRA	Weight (lb/kg)	Refrig.		Pump (gpm/lpm)
							Dis.	Sct.	
R, RN, RX20C R, RN, RX20CK R, RN, RX20ECK	20,000	230/60/1 220/50/1 380/50/3	6.0 5.3 2.7	7.2 6.6 3.2	48 55 24	95/43.1	3/8"	1/2"	6.7/25
R, RN, RX24C R, RN, RX24CK R, RN, RX24D(C) R, RN, RX24ECK	24,000	230/60/1 220/50/1 230/60/3 380/50/3	7.0 6.9 5.4 2.8	8.5 8.5 6.4 3.3	60 55 48 30	100/45.4	3/8"	1/2"	8.0/30
R, RN, RX30C R, RN, RX30CK R, RN, RX30D(C) R, RN, RX30E(C) R, RN, RX30ECK	30,000	230/60/1 220/50/1 230/60/3 460/60/3 380/50/3	7.7 8.7 5.8 2.8 3.5	9.6 10.6 6.6 3.3 4.2	61 69 58 30 38	110/49.9	3/8"	3/4"	10.0/38
R, RN, RX36C R, RN, RX36CK R, RN, RX36D(C) R, RN, RX36E(C) R, RN, RX36ECK	36,000	230/60/1 220/50/1 230/60/3 460/60/3 380/50/3	9.8 9.8 7.2 3.5 4.0	12.3 12.5 8.5 4.0 4.8	82 76 78 36 42	115/52.2	3/8"	3/4"	12.0/45
R, RN, RX48RC R, RN, RX48RCK R, RN, RX48D(C) R, RN, RX48E(C) R, RN, RX48ECK	48,000	230/60/1 220/50/1 230/60/3 460/60/3 380/50/3	12.4 13.5 8.6 4.3 5.0	17.2 17.6 11.1 5.6 6.5	109 114 88 44 50	120/54.4	3/8"	3/4"	16.0/61

Notes:

- All models have the same dimensions; see illustration below.
- All models have 5/8" cooling water connections directly to the condenser coil(s). Seawater manifolds are optional.
- Refer to the Compressor Electrical Power Specs chart below for nominal ratings and exceptional ranges.
- Compressor starting current will vary with voltage and is approximately 3-4 times the full-load amps (FLA).
- Models 20-36K use reciprocating compressors; 48K units have scroll compressors.

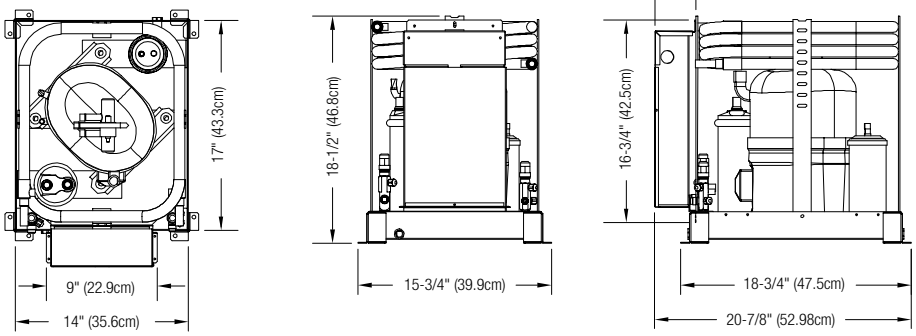
Interpreting Model Numbers

RX	30	D	C	K
Type of Control R: Rotary Knob RN: SMX Net RX: SMX II	Capacity X 1,000 BTU/hr	Compressor Voltage C: 230V, 1 phase D: 230V, 3 phase E: 460V, 3 phase	Control Voltage (3 phase units only) Blank: 115V, 1 phase C: 230V, 1 phase	Operating Frequency Blank: 60Hz K: 50Hz only

Compressor Electrical Power Specs	
Nominal Rating	Acceptable Range
230/60/1	208-240/60/1 & 200/50/1
220/50/1	220-240/50/1
230/60/3	208-230/60/3 & 190-220/50/3
220/50/3	200-220/50/3
460/60/3	440-480V/60/3 & 380-420/50/3
380/50/3	380-420/50/3

Some 60Hz equipment can be operated in a 50Hz environment. However, performance will be decreased by approximately 17%. Fully rated 50Hz capacity may be obtained by specifying Cruisair "CK" equipment.

NOTE: Drain fittings extend 1/4" (0.6cm) from front and back of pan.



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L–2360 Rev. 20080829

Dometic Cruisair®

RE & REU Series DX Air Handlers
With High Efficiency Blowers

REU16 Evaporator shown

Cruisair's REU remote evaporators are draw-through, ductable cooling units with rotatable, variable-speed blowers and integral water-displacing condensate pans. Featuring a high-efficiency permanent split capacitor (PSC) blower in which the motor is concealed, the REU series is available in capacities from 4-16K BTU/hr (20, 24, 30, and 36k units use a shaded pole motor).

The REU series was designed for installation low in a closet, cabinet, or other enclosed space, with discharge air ducted to one or more grilles high in the cabin. One or two evaporators can be used with a single Cruisair type condensing unit of matched capacity. Please contact the Cruisair Applications department for assistance in design prior to installation.

REU units can be used with a combination of plenums and flexible duct, or built-in ductwork may be used. The included hose adapter (4-36K units) is used to connect flexible duct to the blower outlet. If you are using built-in ductwork, a flexible transition between the blower and duct should be installed.

A vibration-isolation mounting kit is included with each REU unit to simplify installation. The PSC blower is supported by a sturdy aluminum bracket with isolation grommets to further reduce possible vibration. The blower performs favorably in higher static pressure conditions. The internal motor housing results in a narrower unit and promotes quieter operation.

The condensate pan, blower housing, and all other metal surfaces over which air passes are covered with insulating foam which reduces noise and secondary condensation.

The "positive flow" condensate pan has an anti-slosh, antifungal foam lining. Condensation is displaced through two 1/2" FPT drains, which are located on the rear of the pan (blower side). Condensate removal is accomplished by the pan's unique raised center.

Cruisair DX evaporators can be controlled using the new SMXht or SMXir keypad/displays operating on the SMX II or SMX Net microprocessor control systems. A mechanical rotary-knob switch assembly is also available.

Key Benefits

- Compact ductable cooling or heating unit.
- Rotatable, variable speed blower.
- Insulated condensate pan with anti-slosh, antifungal foam lining.
- High-efficiency blower.
- Air filter included.
- "Positive Flow" water displacing condensate pan.
- High efficiency evaporator coil.
- Larger blower inlet for increased air flow across coil.
- Single piece shroud and coil enclosure.
- Hose adapter included on 4-36K units.
- Blower bracket with vibration isolation grommets installed.
- Mounting kit included.
- Increased metal thickness on structural parts for strength.
- For use with water-cooled and air-cooled condensers. Air-cooled product line is limited to models 4-16K.

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Technical Specifications for RE & REU Series DX Air Handlers

Item Number	Model Number	Capacity (BTU/hr)	Voltage (50/60Hz)	Blower Amps	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Weight (lb/kg)	Air Flow (cfm/cmh)
715012001 715012403	RE20C RE24C	20,000 24,000	230	0.80	18.25/463.55	19.75/501.65	16.50/419.10	35.00/15.88	667/1133.40 800/1359.40
715013000 715013601	RE30C RE36C	30,000 36,000	230 230	4.00 4.00	20.25/514.35	19.75/501.65	17.50/444.50	42.00/19.05	1000/1699.20 1200/2039.00
715000401 715010402	REU4 REU4C	4,000	115 230	0.78 0.51	9.25/234.95	12.50/317.50	9.25/234.95	10.00/4.54	133/255.99
715000502 715010501	REU5 REU5C	5,000	115 230	0.78 0.51	9.25/234.95	12.50/317.50	9.25/234.95	10.00/4.54	166/282.07
715000701 715010702	REU7 REU7C	7,000	115 230	1.74 0.98	11.25/285.75	13.75/349.25	10.00/254.00	14.00/6.35	233/395.91
715000802 715010801	REU8 REU8C	8,000	115 230	1.74 0.98	11.25/285.75	13.75/349.25	10.00/254.00	14.00/6.35	266/451.99
715001003 715011001	REU10 REU10C	10,000	115 230	1.32 0.66	11.25/285.75	14.25/361.95	11.75/298.45	18.00/8.16	333/565.83
715001202 715011203	REU12 REU12C	12,000	115 230	1.12 0.56	11.25/285.75	14.25/361.95	11.75/298.45	18.00/8.16	400/697.68
715001601 715011604	REU16 REU16C	16,000	115 230	2.09 0.56	13.25/336.55	15.75/400.05	11.75/298.45	24.00/10.89	533/905.67

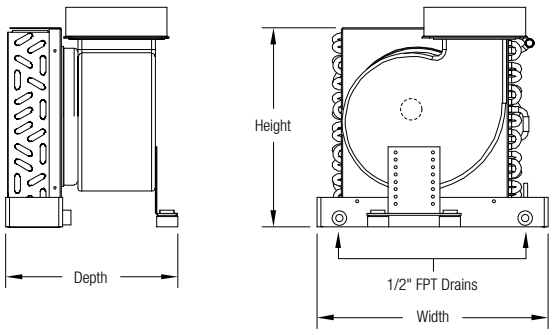
Notes:

• Hose adapter height = 2.0937" additional to height of blower outlet

Interpreting Model Numbers

RE	U	12	C
Remote Evaporator	Blower Type U: High-efficiency PSC internal blower motor	Capacity X 1,000 BTU/hr	Voltage C: 230V Blank: 115V

Capacity BTU/hr	Minimum Grille Sizes (sq in/cm)		Minimum Duct (in/mm)
	Return	Discharge	
4,000	64/413	32/206	4/102
5,000	64/413	32/206	4/102
7,000	80/516	45/290	5/127
8,000	89/574	47/303	5/127
10,000	100/645	60/387	6/152
12,000	130/839	70/452	6/152
16,000	160/1032	80/516	7/178
20,000	200/1290	110/710	9/229
24,000	240/1548	140/903	9/229
30,000	350/2258	170/1097	10/254
36,000	360/2323	196/1265	10/254



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Dometic Cruisair®

E Series DX Evaporators

Low Profile, Twin Blower Air Handlers

The low profile, twin-blower E series of ductable cooling/heating units are available in a wide range of capacities and configurations. They are designed for installations where there is limited vertical space, such as beneath a seat or bunk, or in overhead spaces.

Models are available in capacities of 12,000 to 36,000 BTU/hr. They can be used with all Cruisair Type F or R reverse-cycle condensing units. Multiple cooling/heating units can be used with a single condensing unit of equal capacity in a split system.

Standard **EBUL** units consist of a low-profile evaporator coil mounted on a deep condensate pan, with two PSC blowers drawing air across the coil. Refrigerant line connections and a metering device are also included. Refrigerant connections are male flare fittings.

The condensate pan, blower housing and all transitional metal surfaces are covered with insulating foam to prevent secondary condensation and reduce noise. The drain pan is lined with anti-slosh, antifungal foam, and the blowers can be rotated for discharge in different directions. Various modifications on the base EBUL unit are available.

EBUL units have a high-efficiency permanent split capacitor (PSC) motor that is internal to the blower wheel, and protected in the housing. This results in a quieter unit, with excellent performance and speed control, especially when used with a Cruisair SMX series control.

EBLUP models are designed for overhead installations, and include an insulated return air plenum to collect air from a ceiling mounted grille.

Key Benefits

- Low-profile, twin-blower, ductable cooling/heating unit.
- Works with Cruisair type F or R remote condensing units.
- 12,000 - 36,000 Btu/hr .
- 115V and 230V, 50/60 Hz models.
- Rotatable, variable speed blowers.
- Condensate drain pan with anti-slosh, antifungal foam.
- Foam insulated metal surfaces.
- Return air plenum on EBULP models.
- High efficiency PSC blowers.
- EHBUL models have integrated auxiliary heat.

(Continued on reverse side)

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EHBUL units have integrated electric heat strips to provide heat when the seawater is too cold for adequate reverse-cycle heating. All Cruisair auxiliary heaters use a 2-stage thermal protection system to prevent dangerous overheating in case airflow is lost. The first cutout is an automatic reset switch at 160°F (71°C), and the second stage is a manual reset control that opens at 180°F (82°C). Other safety features include high-temperature insulation on the interior surfaces and high temperature wiring.

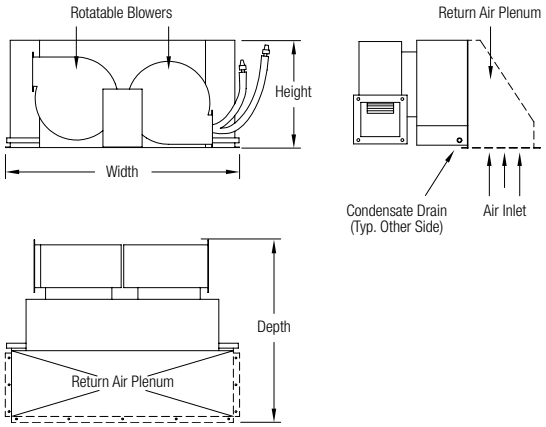
The cooling/heating unit can be installed with a combination of plenums, and flexible or built-in duct-work to convey discharge air to one or more outlets. Hose adapters are required to connect to flexible duct.

All low profile models can be used with either rotary-knob switches or with an SMX series computerized control. EHBL units with electric heat must use SMX Net controls or a special 4-knob switch assembly.

Technical Specifications for E Series Low Profile Cooling/Heating Units

Model	Capacity (BTU/hr)	Voltage	Blower Amps	Electric Heater (kW/Amps)		Dimensions (in/cm)			Weight (lb/kg)
						Height	Width	Depth	
EBULP12 EBULP12C	12,000	115 230	2.4 1.2	N/A		11.0/28	24.0/61	18/48	41/18.6
EBUL16 EBUL16C	16,000	115 230	2.4 1.2	N/A		10.8/27	20.5/52	12.3/31	40/18.2
EBULP16 EBULP16C	16,000	115 230	2.4 1.2	N/A		11.0/28	24.0/61	18.8/48	42/19.1
EHBUL16 EHBUL16C	16,000	115 230	2.4 1.2	2.0	16.6 8.3	10.8/27	20.5/52	15.0/38	42/19.1
EHBULP16 EHBULP16C	16,000	115 230	2.4 1.2	2.0	16.6 8.3	11.0/28	24.0/61	23.0/59	43/19.1
EBUL20C EBUL24C	20,000 24,000	230	2.8 2.8	N/A		13.0/33	26.5/67	12.0/31	44/20.0
EBULP24C	24,000	230	2.8	N/A		12.3/31	26.5/67	22.5/57	44/20.0
EBUL30C EBUL36C	30,000 36,000	230	3.6 3.6	N/A		14.5/37	36.5/93	14.0/36	72/32.7

Capacity (BTU/hr)	Return Air Grille Area (sq in/cm)	Discharge Grille Area (sq in/cm)	Minimum Duct Size (in/mm)	Ref. Line Sizes	
				Discharge	Suction
12,000	120/780	36/232	5/125	1/4"	3/8"
16,000	144/935	49/319	5/125	1/4"	1/2"
20,000	225/1450	60/390	6/150	3/8"	1/2"
24,000	225/1450	70/455	7/150	3/8"	1/2"
30,000	300/1935	80/520	7/175	3/8"	3/4"
36,000	300/1935	90/580	8/200	3/8"	3/4"



Interpreting Model Numbers

E	H	B	U	L	P	16	C
Evaporator	No Letter: No Heat H: Electric Heat	Type of Mover B: Blower	Blower Motor U: PSC	Low Profile	Return Air Plenum	Capacity X 1,000 BTU/hr	Voltage No Letter: 115V C: 230V

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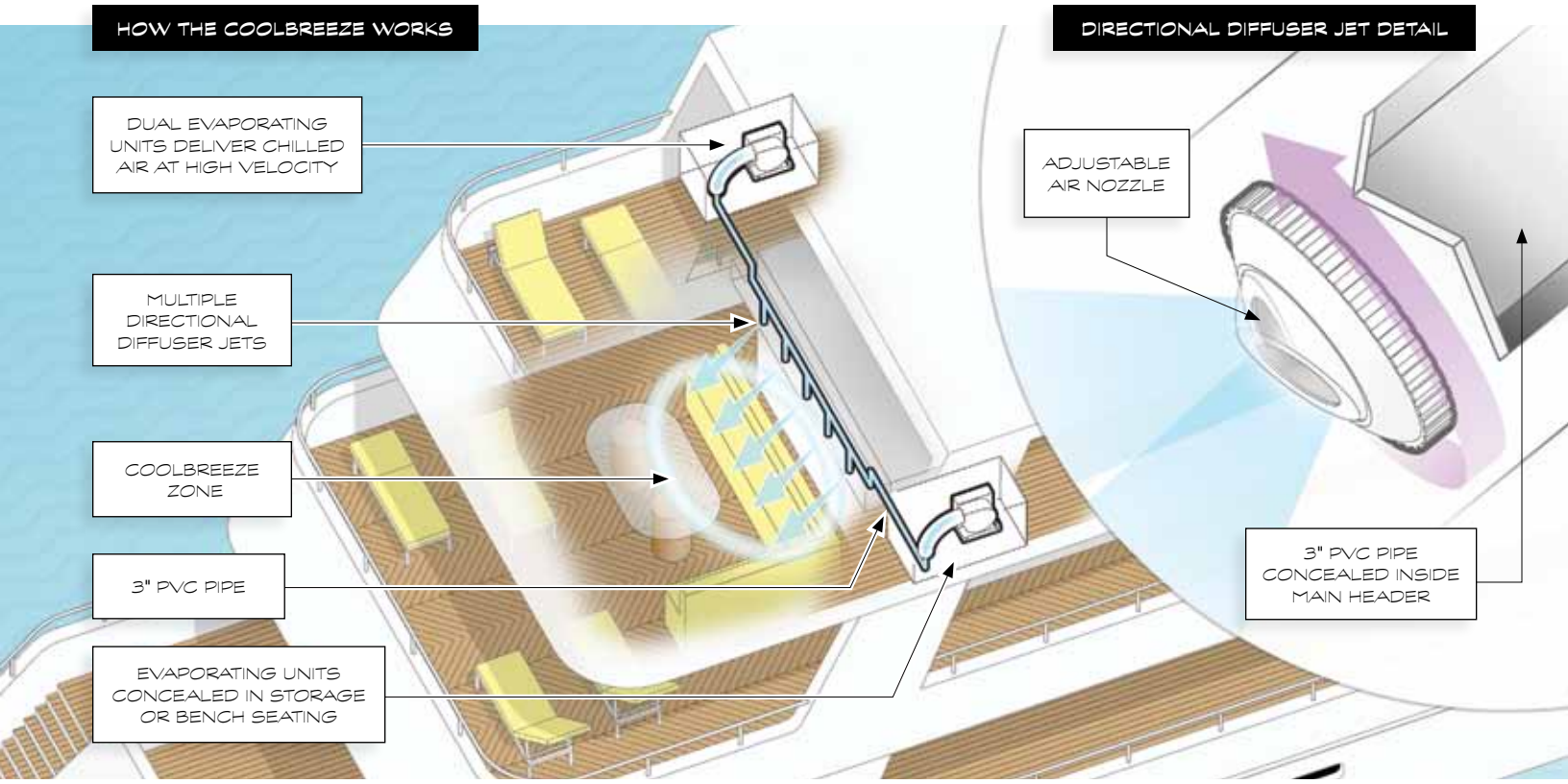
Dometic Cruisair®

CoolBreeze

You're Cool On Deck With Jets of Chilled Air


HOW THE COOLBREEZE WORKS
DUAL EVAPORATING UNITS DELIVER CHILLED AIR AT HIGH VELOCITY
MULTIPLE DIRECTIONAL DIFFUSER JETS
COOLBREEZE ZONE
3" PVC PIPE
EVAPORATING UNITS CONCEALED IN STORAGE OR BENCH SEATING
DIRECTIONAL DIFFUSER JET DETAIL
ADJUSTABLE AIR NOZZLE
3" PVC PIPE CONCEALED INSIDE MAIN HEADER

CoolBreeze provides an efficient, compact solution for generating cool air outside the living space by cooling the *people*, not the area. Enhance your enjoyment of outdoor dining areas, lounge areas, and sport-fishing decks while CoolBreeze's directional jets blow chilled air right on you. To maintain your yacht's aesthetic appeal, CoolBreeze uses rigid, small-diameter ducts that are easily hidden. The only visible parts of the system are the one-inch

Directional diffuser jets

RSC12C condensing unit, electrical/control box, and (2) SCE6C evaporator units shown

Key Benefits

- Use outdoor areas previously too hot to enjoy.
- Highly efficient system cools people instead of area.
- Operates automatically based on ambient outdoor temperature.
- Unobtrusive installation maintains yacht's aesthetic appeal.
- Easily incorporated during boat building.
- Can be retrofitted into existing boats.
- Uses environmentally safe R-417A refrigerant.

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directional jets that concentrate the chilled air into high-velocity streams that cool the people at whom they are aimed.

Operation is totally automatic based on two temperature set points you select. In the first stage, when the temperature rises to the lower set point, the system powers up only the blowers to cool passengers with the jetted movement of ambient air. When the temperature rises to the higher set point, the compressor powers up and chills the air blown onto the passengers.

The system runs until the temperature drops, then CoolBreeze powers off in the reverse of these two stages: When the temperature drops below the higher set point, the system switches to blower-only mode and then off when the temperature drops below the lower set point.

A single on/off switch powers the system. If powered on, the system is dormant until triggered by temperature. If powered off, the system does not operate regardless of temperature.

CoolBreeze provides a worry-free way to keep cool in the mid-day sun while knowing it will turn itself off in the coolness of the evening.

CoolBreeze is designed to perform in and cool high-temperature ambient air. It uses R-417A, an environmentally safe refrigerant approved by the EPA.

Technical Specifications for CoolBreeze

Model	RSC12C-417	RSC12-417	SCE6C	SCE6
Capacity (BTU/hr)	12,000	12,000	6,000	6,000
Capacity (Kcal/hr)	3024	3024	1512	1512
Power (Volt, Hz, Ph)	200/230, 50/60, 1	100/115, 50/60, 1	200/230, 50/60, 1	100/115, 50/60, 1
Full Load Amperage - Cool	5.4	8.4	0.98	1.74
Locked Rotor Amperage	34	50	n/a	n/a
Refrigerant type	R-417A	R-417A	per cond unit	per cond unit
Sea Water Connection	5/8" -hose	5/8" hose	N/A	N/A
Return Grille Sizing (sq. in./sq. cm.)	N/A	N/A	130/839	130/839
Min. Nozzle Size (sq. in./sq. cm.)	N/A	N/A	2.65/17.1	2.65/17.1
Max. Nozzle Size (sq. in./sq. cm.)	N/A	N/A	6.14/39.6	6.14/39.6
Min. Air Velocity Per Nozzle[1] (feet per second/meters per second)	N/A	N/A	1,772/540.1	1,772/540.1
Max. Air Velocity Per Nozzle[1] (feet per second/meters per second)	N/A	N/A	2,186/666.3	2,186/666.3
Dimensions (+/- 0.5" or 13mm)				
Height (in/mm)	12.5/318	12.5/318	14/355	14/355
Width (in/mm)	12.2/310	12.2/310	15.5/394	15.5/394
Depth (in/mm)	15.1/384	15.1/384	10/254	10/254
Estimated Weight (+/- 10%)				
Net weight (lbs/kg)	62/28.2	62/28.2	18/8.16	18/8.16
Ship weight (lbs/kg)	68/30.9	68/30.9	24/10.9	24/10.9

Rigid Duct Options	Port Leg	Starboard Leg	Header	Reservoir[2]
3" Legs X 3" Header	3" (76.2mm)	3" (76.2mm)	3" (76.2mm)	N/A
3" Legs X 3" Reservoir[2]	3" (76.2mm)	3" (76.2mm)	N/A	See note[2]

Notes:
[1] Velocity readings were taken approximately 8"-10" (203mm-254mm) away from the tip of the nozzles.
[2] "Reservoir" refers to an enclosed area at least 8" X 8" (64 sq. in. or 413 sq. cm.). The two legs will pressurize this area and the nozzles will connect directly to the base of the reservoir. The use of a reservoir (where applicable), will reduce installation time and increase air velocity.

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L–2629 Rev. 20080829

Dometic Cruisair®

RM Modulating Condensing Units

Capable of Cooling Up to 5 Zones

RM30 condensing unit shown

The new RM model remote modulating condensing units are the next generation of direct-expansion, cooling only air conditioning units designed to run multiple cooling units (evaporators) with up to five independent zones. Models are available in capacities of 24, 30 & 42,000 BTU/Hr. Total cooling unit capacity should be within 15% of the condensing unit capacity.

The new RM model has a number of improvements. Higher efficiency compressors deliver full capacity even under heavy loads. The newly designed, one-piece electrical box with 3' (1m) cable can be remote mounted simply by removing one screw. Additional service ports have been added for ease of charging and servicing. The one-piece chassis/pan has two new drain locations. New style hold-down brackets secure all four corners and allow for easier installation and removal.

The RM assembly consists of a scroll compressor, cupronickel condenser, and service/base valves, all mounted on a newly designed condensate drain pan. Custom designed components that protect the compressor when operating at full and partial loads include: high and low pressure switches, large capacity receiver and accumulator, hot gas bypass valve, and a thermal expansion de-superheat valve. The bypass valve senses low suction pressure when cooling units are shut off, and allows refrigerant to bypass back into the compressor. The de-superheat valve evaporates refrigerant into the compressor when superheat is too high.

An electrical control and relay box is mounted on the chassis, but can be remote mounted on a 3' (1m) harness for easy access. It includes control triggers, time delay, power relay, and start and run capacitors with a solid state relay for single-phase units, or a contactor for three-phase compressors.

It is designed to be installed in the engine room or other mechanical space, and is not adversely affected by moisture, vibration, or ambient temperatures up to 140°F (60°C). No ventilation is required.

(Continued on reverse side)

Key Benefits

- Redesigned RM type unit is lighter in weight.
- Up to five independent cooling units on one condenser.
- Model RM is compatible with all cabin controls.
- Service ports on refrigerant lines and base valves.
- Rubber isolation mounts on compressors.
- Condensate pan with front and rear drains.
- Corner mounting brackets designed for easy install.
- Electrical box includes power relay and time delay, and may be remotely mounted up to 3' (1m) from unit.
- High efficiency scroll compressors.
- High and low pressure switches.
- Hot gas bypass and de-superheat valves.
- Seawater coil manifolds are optional.
- Heavy-duty vibration isolators are available.
- Cool only.

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Copper tubing is used to carry refrigerant between the condensing unit and the cooling units, which are located in the living spaces. Refrigerant manifolds (models DD and SD) are available to aid in installation.

Each cooling unit has a separate control, either SMX series or 3-knob. These controls operate independently to maintain room temperature. The RM condensing unit runs when any room control calls for cooling, and shuts off when all zone setpoints are satisfied.

Units are available for a variety of power systems. Please refer to the technical specifications on back of this sheet. Note that the 380-460V units will require a single-phase control circuit power feed (115V or 230V). Three-phase units are not ignition protected and must not be installed in an area where flammable vapors may be present.

A seawater cooling system, with pump, scoop type through-hull, seacock, strainer, and overboard discharge, is also required.

RM condensing units are pre-charged at the factory with R-22 refrigerant and a special dye to aid in leak detection; "green gas" R-417A is available, too. Installation and final charging of the system must be performed by a certified technician using EPA approved equipment.

Technical Specifications for RM Modulating Condensing Units

Model	Capacity (BTU/hr)	Power Voltz/Hz/Ph	FLA	LRA	Weight (lb/kg)	Refrig.		Pump (gpm/lpm)
						Dis.	Sct.	
RM24C	24,000	230/60/1	8.0	67	90/40.1	3/8"	1/2"	8.0/30
RM24CK		220/50/1	7.9	74				
RM24D(C)		230/60/3	5.5	55				
RM24E(C)		460/60/3	2.9	27				
RM24ECK		380/50/3	3.2	32				
RM30C	30,000	230/60/1	11.6	84	110/49.9	3/8"	3/4"	10.0/30
RM30CK		220/50/1	9.4	82				
RM30D(C)		230/60/3	6.5	63				
RM30E(C)		460/60/3	3.3	31				
RM30ECK		380/50/3	3.7	40				
RM42C	42,000	230/60/1	12.4	109	120/54.4	3/8"	3/4"	14.0/53
RM42CK		220/50/1	13.5	114				
RM42D(C)		230/60/3	8.6	88				
RM42E(C)		460/60/3	4.3	44				
RM42ECK		380/50/3	5.0	50				

Notes:

- All models have the same dimensions; see illustration below.
- All models have 5/8" cooling water connections directly to the condenser coil(s). Seawater manifolds are optional.
- Refer to the Compressor Electrical Power Specs chart below for nominal ratings and exceptional ranges.
- Compressor starting current will vary with voltage and is approximately 3-4 times the full-load amps (FLA).

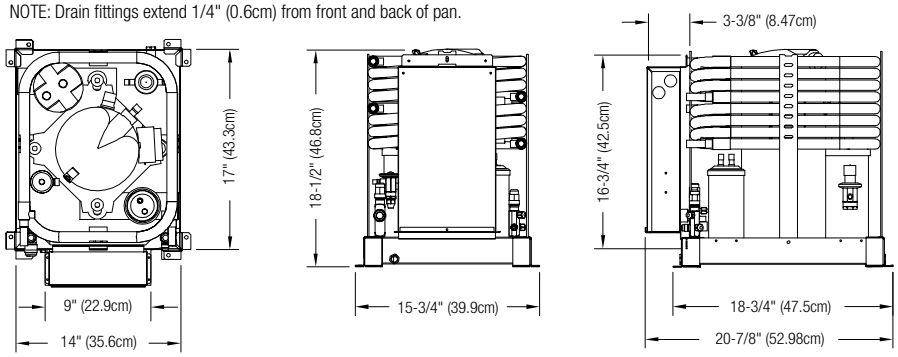
Interpreting Model Numbers

R	M	42	C	K
Condensing Unit	Modulating System	Capacity X 1,000 BTU/hr	Control Voltage (3 phase units only) Blank: 115V, 1 phase C: 230V, 1 phase	Operating Frequency Blank: 60Hz K: 50Hz only

Compressor Electrical Power Specs	
Nominal Rating	Acceptable Range
230/60/1	208-240/60/1 & 200/50/1
220/50/1	220-240/50/1
230/60/3	208-230/60/3 & 190-220/50/3
220/50/3	200-220/50/3
460/60/3	440-480V/60/3 & 380-420/50/3
380/50/3	380-420/50/3

Some 60Hz equipment can be operated in a 50Hz environment. However, performance will be decreased by approximately 17%. Fully rated 50Hz capacity may be obtained by specifying Cruisair "CK" equipment.

NOTE: Drain fittings extend 1/4" (0.6cm) from front and back of pan.



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L–2366 Rev. 20080829

Dometic Cruisair®

Modulating DX Evaporators

EMB & EHMB Series

EHMB12C cooling/
heating unit shown

EMB and EHMB are ductable cooling units with built-in refrigerant solenoid valves and high-efficiency blowers. They are used with Cruisair Modulating Systems, which allow up to five independent temperature-controlled zones on one RM type modulating condensing unit (see specification sheet L–0958).

They are designed to be installed low in a closet or cabinet, with discharge air ducted to grilles high in the cabin. Units are available in capacities from 4,000 to 16,000 Btu/hr.

The EMB and EHMB units consist of an evaporator coil, refrigerant metering device, solenoid valve, refrigerant lines, and squirrel cage blower, all mounted in a condensate pan. All metal surfaces over which air passes are covered with insulating foam to reduce secondary condensation and noise. The condensate pan has an anti-slosh, antifungal foam lining and rubber mounting feet for noise and vibration control as well as easy installation.

The high-efficiency blower can be rotated so the air can be discharged in different directions. The permanent split capacitor (PSC) motor is internal to the blower wheel and housing, which results in a quiet unit with excellent performance and speed control, especially when used with a Cruisair SMX series control.

An electrical junction box is included with the unit, and has a 3' (1m) wire harness so it can be mounted in an accessible location.

EHMB units have integrated electric heat elements. High temperature protection of the heater is provided by two limit switches, one auto-reset and one manual reset. The coil shroud is lined with high temperature insulation to meet ABYC requirements.

Note: Cruisair RM type modulating condensing units are cooling only. If heat is required, the EHMB cooling unit with electric heat must be used.

Cruisair cooling units can be used with a rotary-knob switch assembly, or with the SMX II microprocessor system with an SMXir keypad/display.

For SMX, the corresponding modulating power/logic box, control, and cables must be ordered separately.

Key Benefits

- Cooling unit for use with Modulating Systems.
- Integrated refrigerant solenoid valves.
- Rotatable blower with high-efficiency internal PSC motor.
- Deep condensate pan is insulated and includes anti-slosh, antifungal foam lining.
- Includes air filter and isolation mounting feet.
- Available in cooling only or with electric heat.

ISO 9001:2000

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Technical Specifications for EMB & EHMB Cooling/Heating Units

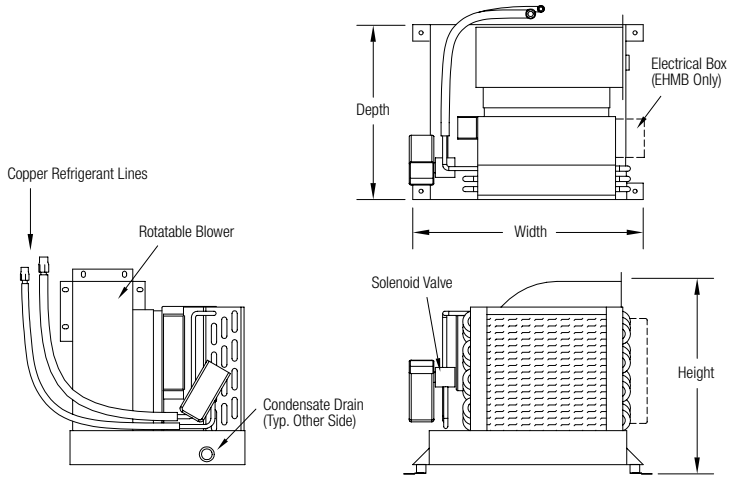
Model	Capacity (BTU/hr)	Voltage	Blower Amps	Electric Heater (kW/Amps)	Dimensions (in/MM)			Weight (lb/kg)	Air Flow (cfm/cmh)
					Height	Width	Depth		
EMB4C EHMB4C	4,000	230	0.6	N/A 1/4.2	10.0/255	10.8/275	13.8/352	17/7.7 20/9.1	200/335
EMB6C EHMB6C	6,000	230	0.6	N/A 1/4.2	10.0/255	10.8/275	13.8/352	19/8.6 22/10.0	200/335
EMB8C EHMB8C	8,000	230	0.6	N/A 1/4.2	10.0/255	10.8/275	13.8/352	19/8.6 22/10.0	200/335
EMB10C EHMB10C	10,000	230	0.7	N/A 1.5/6.2	11.0/280	12.0/306	15.0/383	24/10.9 28/12.7	300/500
EMB12C EHMB12C	12,000	230	0.7	N/A 2/8.3	11.0/280	12.0/306	15.0/383	24/10.9 28/12.7	400/670
EMB16C EHMB16C	16,000	230	0.9	N/A 2/8.3	13.5/345	12.6/321	17.0/438	31/14.1 35/15.9	530/900

Recommended Grille & Duct Sizes

Capacity (BTU/hr)	Return Air Grille Area (sq in/cm)	Discharge Grille Area (sq in/cm)	Minimum Duct Size (in/mm)
4,000	64/410	32/210	4/100
6,000	72/465	49/315	5/125
8,000	72/465	49/315	5/125
10,000	100/650	60/390	6/150
12,000	130/780	70/455	6/150
16,000	160/935	80/520	7/175

Interpreting Model Numbers

E	H	M	B	12	C
Evaporator	No Letter: No Heat H: Electric Heat	Modulating System	Blower	Capacity X 1,000 BTU/hr	C: 230V



Refrigerant Line Sizes

Capacity (BTU/hr)	Discharge	Suction
4-12K	1/4"	3/8"
16K	1/4"	1/2"

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L–0954 Rev. 20080829

Dometic Cruisair®

Modular MTD

The Next Generation of Chillers

MTD120DC shown

The Cruisair MTD is a modular chiller engineered for optimal use of the new environmentally safe R-410A refrigerant. This tempered-water unit provides installation flexibility, reliability, maximum performance, and easy accessibility for maintenance and repair.

Flexible hose improves alignment for customer connections, and all seawater connections are reinforced with stainless-steel for added strength. Thermal expansion valves optimize performance over a wide range of conditions, while a hot-gas bypass valve maintains heating performance in cold seawater and helps prevent water freezing in the heat exchanger. With heating performance effective in cold seawater temperatures as low as 38°F (3.5°C), the need for separate fossil fuel or electric water heaters is eliminated in most applications.

The MTD is available in capacities of 24,000 to 120,000 BTU/hr (2 to 10 tons), and you can use multiple modules in any combination to achieve the total desired capacity. Custom frame and water-manifold installation for multiple units are also available. A reverse-cycle unit, the MTD provides reliable cooling and heating.

Each MTD unit has two sub-modules. This lets you rotate a sub-module to achieve more convenient water-connection locations or compressor access. The sub-modules can even be separated for remote mounting when space is limited. Sub-module changes can be handled in the field or special ordered from the factory.

The MTD has many built-in protection devices. A wire harness with polarized plug is included for easy electrical connections.

MTD units are available with several different compressors to suit a variety of power systems, including: 230V/60Hz/1Ph, 220V/50Hz/1Ph, 230V/60Hz/3Ph, 380V/50hz/3Ph, and 460V/60Hz/3Ph.

Optional Variable Frequency Drives (VFDs) are available, which eliminate start-up power surge and run the unit at full-capacity 60Hz even with 50Hz input. The VFD requires a 3-phase tempering unit, but can operate on 1- or 3-phase input power.

Key Benefits

- Engineered for optimal use of R-410A refrigerant.
- Modular design for installation flexibility.
- Reverse-cycle heating and cooling.
- Scroll compressors standard.
- Larger drain fittings for faster condensate drainage.
- Stainless-steel reinforced seawater connections.
- Flexible hose improves connection alignment.
- Removable seawater manifolds allow cleaning of condenser tubing.
- Integrated loop-water strainer and flow switch.
- Oversized heat exchangers for loop temperatures of 40° F (4.4° C) in cooling and 120° F (49° C) in heating.
- Thermal expansion valves optimize performance over a wide range of conditions.
- Hot-gas bypass valve maintains heating performance in cold seawater and helps prevent water freezing in the heat exchanger.
- 24,000 to 120,000 BTU/hr (2-10 tons).

ISO 9001:2000

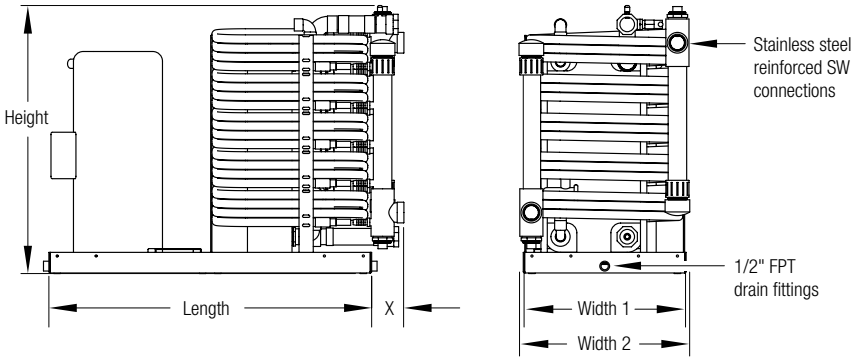
L–2627 Rev. 20080919

Cruisair®

Technical Specifications for MTD Tempering Units

Model	Capacity Btu/hr (Kcal/hr)[1]	Volts/Hz/Ph [2] [3]	Full Load Amps Cool	Full Load Amps Heat	Locked Rotor Amps	Dimensions (in/cm)[4]					Connections		Weight (lb/kg)[4]	Refrig.
						Height	Width 1	Width 2	Length	X	SW	CW		
MTD24C MTD24CK MTD24DC MTD24EC	24,000 (6,048)	230/60/1 220/50/1 230/60/3 460/60/3	6.4 7.5 5.5 2.7	9.5 11.0 7.3 3.6	58.3 67.0 58.0 28.0	17.0/43	12.8/32	12.8/32	25.3/64	0/0	5/8" Hose	1" FPT	145/66 155/70 155/70 155/70	R-410A
MTD30C MTD30CK MTD30DC MTD30EC	30,000 (7,560)	230/60/1 220/50/1 230/60/3 460/60/3	8.4 9.5 6.4 3.3	12.2 13.2 8.3 4.2	77 82 71 38	17.0/43	12.8/32	13.4/34	25.3/64	3.5/9	3/4" FPT	1" FPT	160/73 160/73 160/73 160/73	R-410A
MTD36C MTD36CK MTD36DC MTD36EC	36,000 (9,072)	230/60/1 220/50/1 230/60/3 460/60/3	10.9 11.6 7.3 4.0	15.6 16.9 9.4 5.2	112 97 88 44	22.0/56	12.8/32	13.4/34	25.3/64	3.5/9	1" FPT	1" FPT	195/89 190/86 190/86 190/86	R-410A
MTD48C MTD48CK MTD48DC MTD48EC MTD48ECK	48,000 (12,096)	230/60/1 220/50/1 230/60/3 460/60/3 380/50/3	13.0 14.4 8.5 4.7 4.9	19.1 20.7 11.8 6.2 7.0	137.0 136.0 N/A 46.0 51.5	23.5/60	12.7/32	13.4/34	25.1/64	3.5/9	1" FPT	1" FPT	215/98 215/98 215/98 215/98 220/100	R-410A
MTD60C MTD60CK MTD60DC MTD60EC MTD60ECK	60,000 (15,120)	230/60/1 220/50/1 230/60/3 460/60/3 380/50/3	17.0 21.5 12.4 6.2 6.8	24.7 30.1 16.3 8.2 9.1	158 176 170 75 74	23.5/60	12.7/32	13.4/34	25.1/64	3.5/9	1" FPT	1.25" FPT	230/105 220/100 220/100 225/102 220/100	R-410A
MTD66ECK	66,000 (16,632)	380/50/3	7.2	9.7	75	23.5/60	12.7/32	13.4/34	25.1/64	3.5/9	1" FPT	1.25" FPT	240/109	R-410A
MTD72C MTD72DC MTD72EC MTD72ECK	72,000 (18,144)	230/60/1 230/60/3 460/60/3 380/50/3	23.3 14.2 6.9 9.0	32.5 18.2 9.1 11.7	148 149 75 101	23.5/60	12.7/32	13.4/34	25.1/64	3.5/9	1" FPT	1.25" FPT	250/114 240/109 240/109 240/109	R-410A
MTD96DC MTD96EC MTD96ECK	96,000 (24,192)	230/60/3 460/60/3 380/50/3	19.5 9.8 10.8	24.9 12.4 13.6	195 95 111	26.8/68	16.6/42	17.4/44	33/84	3.75/10	1.25" FPT	1.5" FPT	350/159	R-410A
MTD120DC MTD120EC MTD120ECK	120,000 (30,239)	230/60/3 460/60/3 380/50/3	25.3 12.7 13.3	32.8 16.4 17.8	239 125 118	26.8/68	16.6/42	17.4/44	33/84	3.75/10	1.25" FPT	1.5" FPT	460/209 460/209 475/216	R-410A

Compressor Electrical Power Specs[2]	
Nominal Rating	**Acceptable Range**
230/60/1	208-240/60/1
220/50/1	220-240/50/1
230/60/3	208-230/60/3 and 190-220/50/3
220/50/3	200-220/50/3
460/60/3	440-480/60/3 and 380-420/50/3
380/50/3	380-420/50/3



Notes:

[1] Cooling capacity at 100°F (38°C) condensing temperature and 35°F (2°C) evaporating temperature. Reverse cycle heating capacity at 130°F (54°C) condensing and 45°F (7°C) evaporating temperature.
[2] For more information regarding compressor voltages, refer to Field Notice #192-B3 on Dometic Environmental's Customer News and Information website (www.DometicEnviro.com).
[3] See the Compressor Electrical Power Specs table above.
[4] All dimensions are ± 1/2" (13mm). All weights are ± 10%.

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L–2627 Rev. 20080919

Dometic Cruisair®

TWC Compact Tempering Unit

Compact & Enclosed Design

TWC24C shown

Cruisair's new TWC Compact is a high performance, cost effective Tempering Unit that provides all the advantages of a chilled water system while maintaining the performance levels associated with the Cruisair name. The reverse cycle TWC chiller cools and heats, and is currently available in 24,000 BTU/hr (2-ton) to 36,000 BTU/hr (3-ton) sizes. Multiple units can be installed to achieve the required total capacity.

All TWC chillers come with R-410A refrigerant, which is the preferred environmentally-friendly refrigerant used in modern high efficiency air conditioning systems. The brazed platecoil evaporator and coaxial cupronickel seawater condenser allow for superior cooling and heating performance.

Each unit includes a chilled water (CW) flow switch, high and low refrigerant pressure switches, and inlet and outlet CW temperature sensors. Note that this TWC chiller does not include a chilled water modulating flow control. This means that air handlers with or without flow controls can be used, though on larger boats we always recommend using flow-controlled air handlers to ensure proper water distribution. A balancing flow control (BFC) is not needed when using TWC chillers.

An electrical box mounted on top of the chiller houses the control board as well as starting components, and can be mounted remotely up to 6' (1.8m) away.

(Continued on reverse side)

Key Benefits

- Compact, enclosed design.
- Reverse cycle for cooling and heating.
- High-efficiency rotary or scroll compressor.
- Includes flow switch, high and low pressure switches, and inlet and outlet CW temperature sensors.
- Large heat exchangers for superior performance in both cooling and heating.
- Choice of either TWLC or DDC chiller control (included on unit).
- Electrical box can be mounted remotely.
- All models use R-410A refrigerant.

ISO 9001:2000

L–2430 Rev. 20090327

Cruisair®

Two different chiller control systems are available. The standard control is our proven Digital Diagnostic Control (DDC) that provides simple, single-stage operation. For the customer who wants full system control with multi-unit staging and LCD readout of chiller status, the Tempered Water Logic Control (TWLC) is available. Depending on the configuration, additional cables, switches, sensors, or a display may be required.

Technical Specifications for TWC Compact Tempering Units

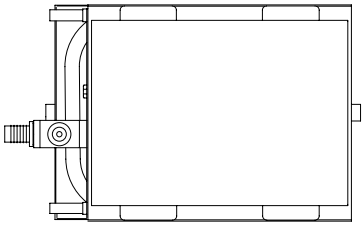
Model	Capacity (BTU/hr)[1]	Volts/Hz/Ph[2]	FLA Cool	FLA Heat	Dimensions (in/mm)[3] Height	Width	Length	Connections SW	CW	Weight[3] (lb/kg)	Refrigerant
TWC24C	24,000	230/60/1	7.5	9.8	18.6/472	13.0/330	18.8/477	5/8" HB	1" FPT/ 1" HB	105/48	R-410A
TWC24CK		220/50/1	9.5	11.0							
TWC24DC		230/60/3	5.7	7.3							
TWC24EC		460/60/3	2.8	3.6							
TWC24ECK		380/50/3	3.3	4.4							
TWC30C	30,000	230/60/1	9.3	13.5	18.6/472	13.0/330	18.8/477	5/8" HB	1" FPT/ 1" HB	110/50	R-410A
TWC31CK		220/50/1	10.3	12.0							
TWC32DC		230/60/3	7.2	9.1							
TWC33EC		460/60/3	3.3[4]	4.2[4]							
TWC34ECK		380/50/3	N/A	N/A							
TWC36C	36,000	230/60/1	10.9	15.6	18.6/472	13.0/330	18.8/477	5/8" HB	1" FPT/ 1" HB	110/50	R-410A
TWC36CK		220/50/1	10.5	12.5							
TWC36DC		230/60/3	8.0	10.2							
TWC36EC		460/60/3	4.1	5.3							
TWC36ECK		380/50/3	4.0	5.6							

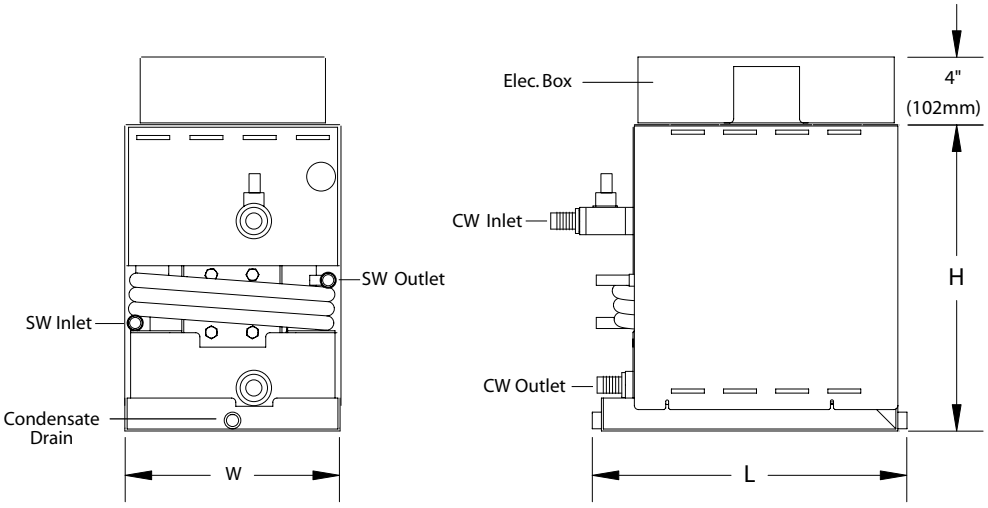
NOTES:

[1] Nominal capacity shown, as per ABYC guidelines of the compressor manufacturer's ratings.
[2] Nominal compressor voltage shown. Refer to chart at right for operational voltage ranges.
[3] All dimensions are ± 1/2" (13mm). All weights are ± 10%.
[4] Preliminary data.

FLA = Full Load Amperage
LRA = Locked Rotor Amperage

Nominal Compressor Voltage Ranges
230/60/1 = 208-240/60/1
220/50/1 = 220-240/50/1
230/60/3 = 208-230/60/3 and 200-220/50/3
380/50/3 = 380-420/50/3
460/60/3 = 440-480/60/3 and 380-420/50/3





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L–2430 Rev. 20090327

Dometic Cruisair®

MTS Chillers

For Pleasure Yachts & Commercial Vessels

MTS25 shown

The MTS is a high-capacity modular chiller unit for large pleasure yachts and commercial vessels. Optional electric heaters can provide onboard comfort year round.

Each module contains a hermetic scroll compressor and shell-and-tube marine-grade condenser, along with other mechanical and electrical components on a single chassis. Multiple modules can be staged as needed to meet the required load.

These space-saving modules are designed for easy installation in tight spaces. The MTS provides easy front access for repair and maintenance of condenser tubes, heater rods, flow switch, compressor, and replaceable drier cores. Safety measures include high-pressure switch, refrigerant pressure-relief valve, low-pressure switch, flow switch, high-limit switch, and freeze protection.

A filter drier keeps refrigerant oil clean and dry for long compressor life. With 100 percent pump-down capacity, refrigerant circuit repairs can be made without recovering the refrigerant.

The MTS 25-ton (279,000 BTU/hr) chiller is available in 380V and 460V models.

Key Benefits

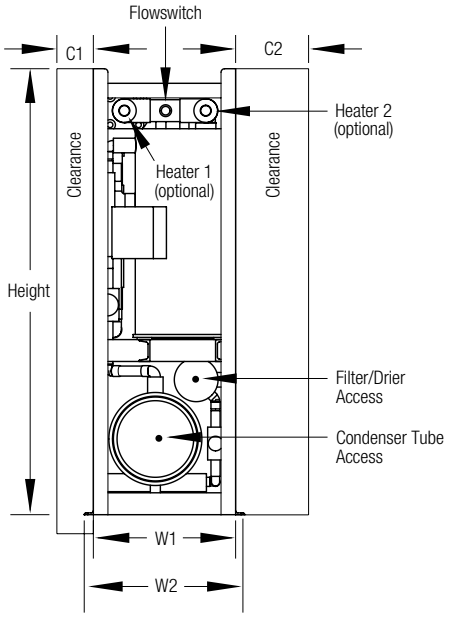
- Modular design for staging multiple units.
- Hermetic scroll compressor – avoids leaks.
- Marine-grade cupronickel shell-and-tube condenser.
- Dual bottom-draining liquid connections and trap in condenser – optimal performance in choppy seas.
- High-pressure switch and pressure-relief valve for safety.
- Available in R-22 or green gas.
- Frequency drives – minimize starting amps.
- Filter drier – keeps refrigerant oil clean and dry for long compressor life.
- 100% pump-down capacity – refrigerant circuit repairs can be made without recovering the refrigerant.

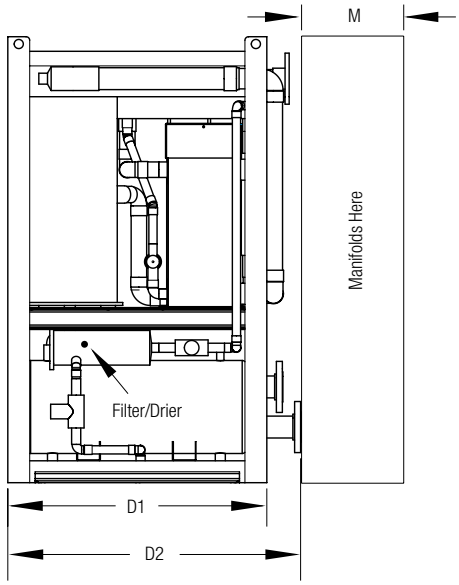
Technical Specifications for MTS 25-Ton

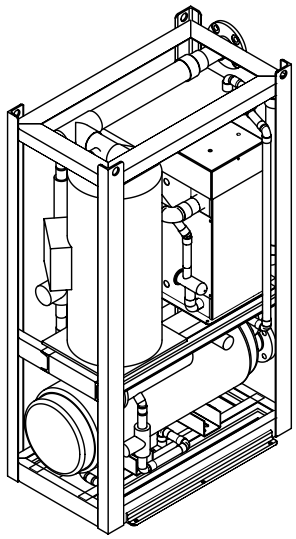
Model	MTS25 (380V)	MTS25 (460V)
Capacity (BTU/Hr)	279,000	279,000
Voltage	380/60/3	460/60/3
Amps	35.5	35.5
Net Weight (lbs/kg)	1150/429.2	1150/429.2
Height (in/mm)	61.2/1554.48	61.2/1554.48
Width, W1 (in/mm)	19.5/495.3	19.5/495.3
Width, W2 (in/mm)	21.75/552.45	21.75/552.45
Depth, D1 (in/mm)	35.5/901.7	35.5/901.7
Depth, D2 (in/mm)	40.2/1021.08	40.2/1021.08
Clearance, C1 (in/mm)	5/127	5/127
Clearance, C2 (in/mm)	10/254	10/254
Manifolds (see notes)	See notes below	See notes below

Notes:

Allow 8" for manifolds only, or 14" for manifolds with isolation valves. All dimensions +/- 0.5 inch. Clearance between modules should alternate 5", 10", 5"... and at least 5" at each end.







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L–2638 Rev. 20080829

Dometic Cruisair®

AT Series Air Handlers for TW

Improved Design for Better Performance

AT18HV air handler shown

Cruisair's AT series of air handlers for tempered water systems are draw-though (ducted) units that replace the CBU, CBBL, and CHBBL models, and have many improvements and options over the existing units.

Significant improvements include: sloped "Positive-Flow" drain pan which reduces standing water, larger drain connections, improved coil design for better cooling and dehumidifying performance, coil is offset from drain pan edge to ensure all condensation is caught in the pan, redesigned piping so the by-pass valve is clear of dripping condensation, pressure test ports for troubleshooting, and the new 24,000 BTU/hr unit uses a high-efficiency, internal-motor blower for quieter operation. On units with auxiliary (electric) heat, the new heater design allows removal from the top or side for access or servicing.

Options:

- Electric heat with two-stage electric heat overload (no thermo-fuse), heater assembly accessible from top or side.
- Electric heat option may be added in the field
- Right-hand water connections
- Available without bypass valve
- Pre-rotated blowers
- Corrosion resistant coated evaporator coil
- 3ph electric heat available

Key Benefits

- Compact design; large coil shroud volume for optimum performance.
- High-efficiency internal-motor blower, except model AT4F. Blower can be rotated in the field.
- Integrated 3-way bypass valve with easy-change power head.
- Modulating flow control to ensure proper water distribution to all units.
- Sloped, "Positive-Flow" drain pan with anti-slosh, antifungal foam.
- Two 1/2" FPT drain connections on back of pan within footprint of unit.
- Integrated chassis with vibration isolation mounting feet.
- Remote air bleeder on 6' (1.8m) of flexible tubing with ball valve.
- Washable air filter included. Micro-Particle Anti-Allergenic air filters available.
- Large, remote electrical junction box with 6' (1.9m) wire harness.
- 24k unit with high-efficiency internal-motor blower.
- Water pressure test ports for troubleshooting.
- Allowance for connecting variable fan speed drives.
- Rotatable blowers.
- ISTA certified packaging.
- Change-Over Stat (COS) is now sold with the new AT power/logic box (Model PLTX-HVSTAT) which also includes a TSEP10.

ISO 9001:2000

L–2354 Rev. 20080829

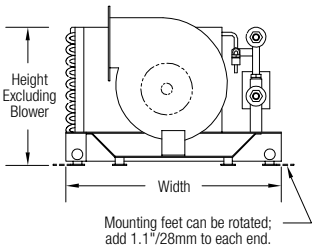
Cruisair®

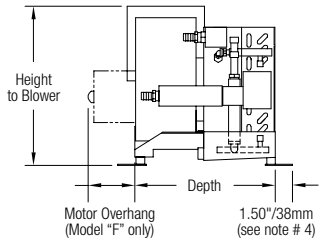
Technical Specifications for AT Series Air Handlers

Model[1][2]	AT4F		AT6HV		AT9HV		AT12HV		AT18HV		AT24HV		AT36HV
Capacity (BTU/hr)/(Kcal/hr)	4,000/1,008		6,000/1,512		9,000/2,268		12,000/3,024		18,000/4,536		24,000/6,048		36,000/9,072
Voltage @ 50-60Hz/1Ph	115	230	115	230	115	230	115	230	115	230	115	230	230
Amperage (FLA) Cool	0.9	0.5	1.2	0.6	1.4	0.7	1.4	0.7	2.2	1.0	2.2	1.0	1.6
Optional Electric Heaters [3]													
Element Size (kW)	N/A		1.0		1.5		2.0		3.0		3.0		4.0
Rating (BTU/hr)/(Kcal/hr)	N/A		3,412/860		5,118/1,290		6,824/1,720		10,236/2,579		10,236/2,579		13,648/3,439
Amperage (FLA) Heat	N/A		10.5	4.9	14.4	7.2	18.8	9.4	28.3	14.0	28.2	14.0	19.0
Max. Fuse/in. Circuit Ampacity													
Without Electric Heat	5/2	5/1	5/3	5/1	5/2	5/1	5/2	5/1	5/3	5/2	5/3	5/2	5/3
With Electric Heat Open	N/A		10/9	5/5	15/14	10/7	20/18	10/9	30/27	15/14	30/27	15/14	25/20
GPM (liters/min.)	1.0/3.8		1.5/5.7		2.3/8.5		3.0/11.4		4.5/17.0		6.0/22.7		9.0/34.1
CFM (M^3/Hr) Nominal	85/144		174/296		227/386		276/469		322/547		413/702		550/935
External SP (in. H20/eq. Ft.)	0.22/31		0.72/79		0.23/45		0.36/48		0.25/40		0.22/44		0.75/90
Dimensions (in/mm)[4]													
Height Excluding Blower	10.72/272		10.2/259		11.90/302		12.05/306		14.96/380		16.61/422		19.50/495
Height to Blower	9.43/240		12.63/321		13.25/337		13.88/353		16.50/419		16.68/424		19.50/495
Width	14.75/375		15.00/381		16.63/422		18.75/476		20.25/514		22.63/575		26.63/676
Depth	9.62/244		12.28/312		12.50/318		12.50/318		12.25/311		15.25/387		18.00/457
Supply Air Duct Diameter	4/102		5/127		6/152		6/152		7/178		8/203		8/203
Remote Mount Electric Box	8.00/203 High X 6.13/156 Wide X 2.00/51 Deep												
Return Air Inlet (sq in/cm)	64/413		70/452		98/632		130/839		200/1,290		240/1,548		360/2,323
Supply Air Outlet (sq in/cm)	32/206		35/226		49/316		70/452		100/645		140/903		196/1,265
Water Connections	Drain: 1/2" FPT with PVC HB. Chilled Water: 1/2" FPT on 4-24K; 1" FPT on 36K with Brass HB on All.												
Net Weight (lb/kg)[5]	14.0/6.4		18.4/8.3		24.0/10.9		24.0/10.9		32.8/14.9		38.0/17.2		60.0/27.2
Gross Weight (lb/kg)[5]	24.0/10.9		28.4/12.9		34.0/15.4		34.0/15.4		36.8/16.7		52.0/23.6		66.0/29.2

Notes:

[1] Model numbers shown are for 115V units. Add a "Z" after the number to designate 230V (i.e. AT12HVZ).
[2] Electrical and blower data is based on 50Hz performance.
[3] Auxiliary heating elements are optional, and must be ordered with unit. Add "-1kW, -1.5kW, etc." to the model number.
[4] Rotatable feet affect the final dimensions. Front feet add 1.5" to the front, or 1.1" to both sides. Rear feet do not add to the width or depth when rotated to the side.
[5] Weights listed are for standard units. For weights of units with the electric heater option, add heater elements weights to unit weight. 1.0kW & 1.5kW = 1.5 lbs/0.7 kg; 2.0kW & 3.0kW = 3.0 lbs/1.4 kg. Dimensional weights may apply to shipping charges; contact your sales-admin representative.





Interpreting Model Numbers

AT	12	HV	Z	-FC	-L120	-2KW
"AT" style Air Handler	Capacity X 1,000 BTU/hr	Blower HV: High-Efficiency F: External Motor	Voltage Z: 230V Blank: 115V	With Flow Control Blank: No Flow Control	Valve & Blower Orientation Blank: LO (standard)	kW of Elec. Heat Blank: No Elec. Heat

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L–2354 Rev. 20080829

Dometic Cruisair®

Super Quiet AT-DC Air Handlers
With WhisperCool Technology

AT18DC shown

Dometic creates the new standard in luxury yacht climate control that you'll barely notice – precisely what your clients are asking for – quiet nights. WhisperCool Technology harnesses engineering refinements to eliminate annoying "motor hum" from traditional air conditioning blowers that occurs at very low speeds. Incoming alternating current is converted to drive a high-efficiency, brushless DC fan motor. The result is a much quieter fan operating across a broad range of variable speeds, permitting the user to select the desired comfort level.

Additional design changes in the air handlers eliminate condensate drain problems, reduce dripping condensation and standing water issues. An improved coil enhances cooling and dehumidification performance. The redesigned unit also creates easily accessible water-pressure test points for troubleshooting and maintenance.

Better dehumidification, better cooling, less noise… just the kind of performance one expects aboard a luxury yacht.

Key Benefits

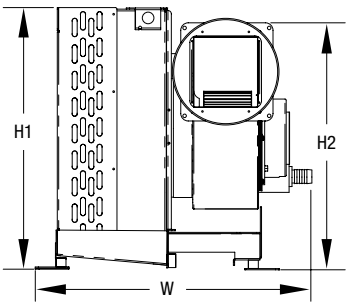
- Advanced super-quiet variable speed DC fan motor.
- Operates with Cruisair Tempered Water Air Conditioning Systems.
- Engineering improvements eliminate condensate drain challenges – a positive-flow drain pan, larger drain connections, offset coil from drain-pan edge and a redesigned bypass valve.
- Improved coil design for better dehumidification and cooling.
- More-accessible maintenance points including water-pressure test ports.

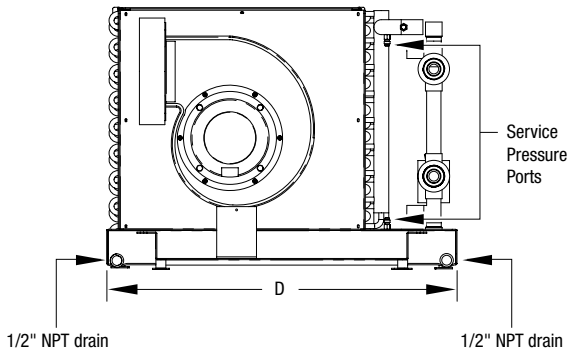
Cruisair®

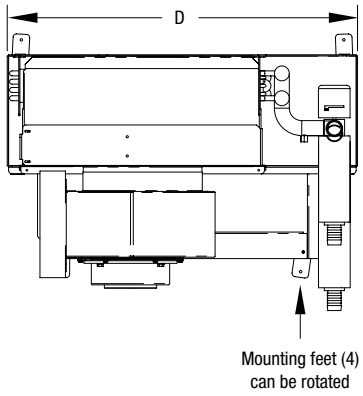
Technical Specifications for AT-DC Air Handlers

Model	AT6DC	AT9DC	AT12DC	AT18DC	AT24DC	ATL36DC
Capacity (BTU/Hr)	6,000	9,000	12,000	18,000	24,000	36,000
Voltage (VAC)	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1
Amps (FLA) Cool*	2.8	2.8	2.8	3.5	3.5	3.5
Optional Heater KW	1	1	1.5	1.5	3	3
Heater Amps	4.3	4.3	6.5	6.5	13.0	13.0
Amps (FLA) Heat*	7.1	7.1	9.3	10.0	18.7	20.7
Max Fuse						
Without Electric Heat	5	5	5	5	5	5
With Electric Heat	10	10	10	15	20	25
Min Circuit Ampacity						
Without Electric Heat	4	4	4	5	5	5
With Electric Heat	8	8	11	11	18	18
GPM/(liters/min)	1.5/5.7	2.25/8.5	3/11.4	4.5/17.0	6/22.7	9/34.1
CFM	200	300	400	600	700	800
External Static Pressure (in H2O)	2.9	2.8	2.6	2.1	1.4	0.5
Dimensions (in/mm)						
Height with blower (H1)	13.63/346	13.73/349	13.94/354	16.94/430	16.7/424	19.74/501
Height without blower (H2)	11.08/281	11.79/299	12.05/306	14.83/377	16.7/424	19.74/501
Width (W)	14.81/376	16.48/419	18.75/476	20.08/510	22.48/571	26.41/671
Depth (D)	14.27/362	14.55/370	14.49/368	14.83/377	16.42/417	17.15/436
Duct Ring Diameter (in/mm)	5/127.0	6/152.4	6/152.4	7/177.8	8/203.2	8/203.2
Minimum Supply Air Outlet (sq. in.)	35	49	70	100	140	196
Minimum Return Air Inlet (sq. in.)	70	98	130	200	240	360
Drain Connections	two 1/2" female NPT	two 1/2" female NPT	two 1/2" female NPT	two 1/2" female NPT	two 1/2" female NPT	two 1/2" female NPT
Chilled Water Connections, Female NPT	1/2"	1/2"	1/2"	1/2"	1/2"	1"
Net Weight (lbs/kg)	23/10.4	27/12.2	29/13.2	39/17.7	44/20.0	63/28.6
Gross Weight (lbs/kg)	33/15.0	37/16.8	39/17.7	49/22.2	58/26.3	72/32.7

* Amps listed above are based on maximum speed in free air. Speed would be set well below maximum, and the unit would ordinarily be ducted rather than free air, therefore, the real world amps will be considerably lower.







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L–2426B Rev. 20080829

Dometic Cruisair®

ATL Air Handlers for Chillers

Designed With Height Constraints In Mind

ATL24DC shown

The ATL series is an improved low-profile, chilled-water, draw-through air handler. Insulating foam covers the condensate pan, blower housing, shroud, and coil end cover to reduce noise and secondary condensation. The condensate pan also has an anti-slosh, anti-fungal foam lining. The ATL series is designed to replace the CHBBC models.

ATL air handlers are an excellent choice for over-head applications where height is limited. Typically, each cabin or area has one or more air handlers with an independent climate control to provide passengers with the most comfortable environment on the water.

All Dometic air handlers use corrosion-resistant materials, and are fully insulated with deep drain pans to prevent secondary condensation.

Key Benefits

- Suspend from above or support from beneath, vibration isolation included.
- Heater elements accessible from underneath.
- Bypass valve has removable power head for simple servicing.
- Valve body is soldered to unit to prevent leaks.
- The electrical box can be mounted remotely up to six feet away.
- Remote air bleeder on six feet (1.8m) of flexible tubing with easy-operating ball valve.
- Washable air filter included. Micro-Particle Anti-Allergenic air filters available.

Optional Features

- DC blowers – strong and quiet at any speed.
- Valve on left (standard) or on right (optional).
- Flow control helps balance chilled water distribution throughout the boat by ensuring that no air handler so equipped receives more flow than required. This eliminates the tedious job of trying to manually balance system flow.

ISO 9001:2000

L–2548 Rev. 20090313

Cruisair®

Technical Specifications for ATL Air Handlers

Model	ATL6DC	ATL9DC	ATL12DC	ATL18DC	ATL24DC	ATL30DC	ATL36DC	ATL16F	
Capacity (BTU/hr)	6000	9000	12000	18000	24000	30000	36000	16000	16000
Volts/Hz/Phase	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	208-230/ 50-60/1	115/60/1	208-230/ 50-60/1
Amps (FLA) Cool	1.4	1.4	2.8	2.8	3.9	7.8	7.8	2.4	0.9
Optional Heater kW	1	1	1.5	1.5	3	3	3	1.5	1.5
Heater Amps	4.3	4.3	6.5	6.5	13.0	13.0	13.0	13.0	6.5
Amps (FLA) Heat	5.7	5.7	9.3	9.3	16.9	20.8	20.8	15.4	7.4
Max. Fuse									
Without Elec. Heat	5	5	5	5	5	15	15	5	5
With Elec. Heat	10	10	10	10	20	30	30	20	10
Min. Circuit Amps									
Without Elec. Heat	2	2	4	4	5	10	10	3	2
With Elec. Heat	7	7	11	11	18	23	23	17	8
Water Flow, GPM/(liters/min)	1.5/5.7	2.25/8.5	3/11	4.5/17	6/23	7.5/28	9/34	4/15	4/15
Air Flow, CFM/(m3/hr)	200/340	300/510	400/680	600/1020	800/1360	1000/1700	1200/2040	420/710	420/710
External Static Pressure (in H2O/Pa)	1.9/470	0.65/160	1.9/470	0.65/160	1.5/370	1.65/410	0.65/160	0.3/75	0.3/75
Height (in/mm)	8.1/205	8.1/205	8.1/205	8.1/205	10.4/264	10.4/264	10.4/264	8.1/205	8.1/205
Depth (in/mm)	21.7/551	21.7/551	21.7/551	21.7/551	22.7/577	22.7/577	22.7/577	17.6/447	17.6/447
Width (in/mm)	19.2/488	19.2/488	31.3/795	31.3/795	42.3/1070	64.2/1630	64.2/1630	23.4/595	23.4/595
Duct Connections (in/mm)	6/153 1 ring	6/153 1 ring	6/153 2 rings	6/153 2 rings	8/204 1 ring	8/204 2 rings	8/204 2 rings	4/102 2 obrounds	4/102 2 obrounds
Min Supply Air Outlet Per Duct (in^2/cm^2)	35/226 1 duct	49/316 1 duct	35/226 2 ducts	49/316 2 ducts	147/949 1 duct	84/542 2 ducts	84/542 2 ducts	40/260 2 ducts	40/260 2 ducts
Total Return Air Inlet (in^2/cm^2)	70/452	98/632	130/840	200/1290	240/1550	300/1935	360/930	144/930	144/930
Drain Connections	Two 1/2" od tube stubs								
Chilled Water Connections, Female NPT (in)	1/2	1/2	1/2	1/2	1/2	1	1	1/2	1/2
Pan Style	Sloped	Sloped	Sloped	Sloped	Flat	Flat	Flat	Sloped	Sloped

Notes: Dimensions are ± 0.3" or 8mm. Blower amps will be reduced at lower speed/cfm static pressure.

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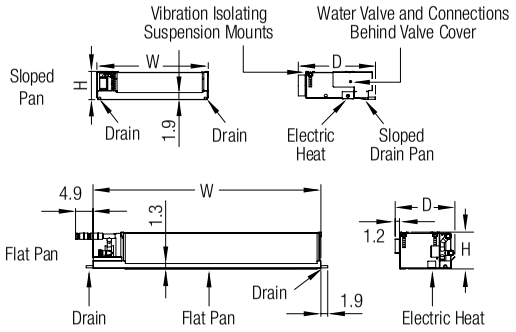
L–2548 Rev. 20090313



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Dometic Cruisair®

ABL Air Handlers for Chillers

Low-Profile Models

ABL18DCZ shown

The ABL series is an improved low-profile, draw-through chilled-water air handler. Insulating foam covers the condensate pan, blower housing, shroud, and coil end cover to reduce noise and secondary condensation. The condensate pan also has an anti-slosh, anti-fungal foam lining. The ABL series is designed to replace the CBLB models.

ABL air handlers are an excellent choice for over-head applications where height is limited. Typically, each cabin or area has one or more air handlers with an independent climate control to provide passengers with the most comfortable environment on the water.

Key Benefits

- DC blowers are strong and quiet at any speed.
- Suspend from above or support from beneath, vibration isolation included.
- Heater elements accessible from underneath (standard) or from above (optional).
- Bypass valve has removable power head for simple servicing.
- Valve body is soldered to unit to prevent leaks.
- The electrical box can be mounted remotely up to six feet away.
- Remote air bleeder on six feet (1.8m) of flexible tubing with easy-operating ball valve.
- Washable air filter included. Micro-Particle Anti-Allergenic air filters available.

Optional Features

- Valve on left (standard) or on right (optional).
- Heater elements accessible from underneath (standard) or from above (optional).
- Flow control helps balance chilled water distribution throughout the boat by ensuring that no air handler so equipped receives more flow than required. This eliminates the tedious job of trying to manually balance system flow.

ISO 9001:2000

L–2561 Rev. 20080829

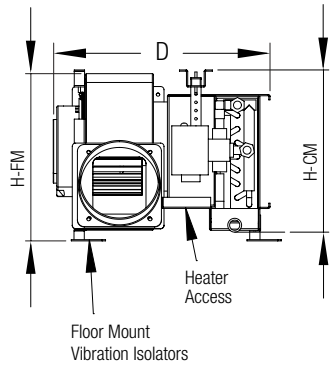
Cruisair®

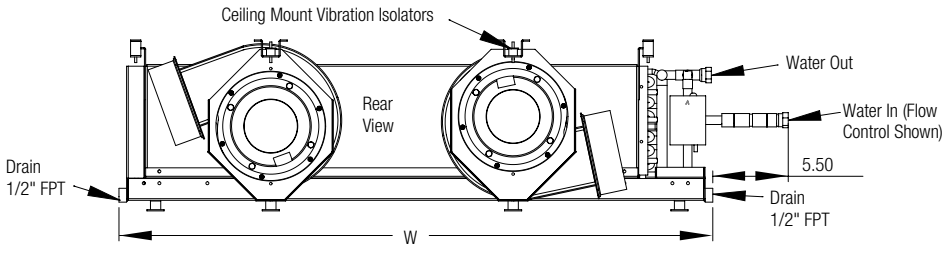
Technical Specifications for ABL Air Handlers

Model	ABL18DCZ	ABL24DCZ
Capacity (BTU/hr)	18,000	24,000
Voltage	208-230/50-60/1	208-230/50-60/1
Amps (FLA) Cool	5.6	5.6
Optional Heater KW	3	3
Heater Amps	13.04	13.04
Amps (FLA) Heat	18.7	18.7
Max. Fuse		
Without Electric Heat	10	10
With Electric Heat	25	25
Min. Circuit Ampacity		
Without Electric Heat	8	8
With Electric Heat	21	21
GPM	4.5	6
CFM	600	800
External static pressure (in H2O)	2.7	2.5
Dimensions (in/mm)		
Height Ceiling Mount, H-CM	11.9/302.25	11.9/302.25
Height Floor Mount, H-FM	12.2/309.90	12.2/309.90
Width, W	37.3/947.40	43.3/1099.80
Depth, D	15.8/401.30	15.8/401.30
Dual Duct Rings (in/mm)	6/152.40	6/152.40
Total Return Air Inlet (sq in)	200	240
Supply Air Outlet for Each Blower (sq in)	50 + 50	70 + 70
Drain Connections, Female NPT (in)	1/2"	1/2"
Chilled Water Connections, Female NPT (in)	1/2"	1/2"
Net Weight (lbs/kg)	63/28.35	66/29.94
Gross Weight (lbs/kg)	72/32.40	81/36.74

Notes:

Dimensions are ± 0.3 inches or 7.62 mm. Blower amps will be reduced at lower speed/cfm/static pressure.





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L–2561 Rev. 20080829

Dometic Cruisair®

ATV Air Handlers for Chillers

Designed With Depth Constraints In Mind

ATV6DC air handler shown

The ATV is a tempered-water air handler designed for applications where very little depth is available. Showcasing a unique vertical layout, this model has the coil low and the blower above.

Put it in the wall. Tall and slim, the ATV makes previously unusable areas suitable for blower installation. With a depth of only 9.4" (240mm) it can be hidden in side areas instead of in places above or below, where most air handlers go. Designed for ducted applications, the ATV has a strong, quiet DC blower that rotates to discharge vertically or horizontally.

Heat is just a button-press away. Typically, each cabin or living space has one or more air handlers, each with an independent climate control to provide passengers with the most comfortable environment on the water. The ATV air handler includes an electric heater to provide supplemental heat in cold climates. The ATV can also provide heat to its cabin even while the chiller is supplying cool air to other areas.

Dometic air handlers have deep drain pans, use corrosion-resistant materials, and are fully insulated to prevent secondary condensation. An optional flow control is highly recommended to help distribute the flow of chilled water more efficiently.

Key Benefits

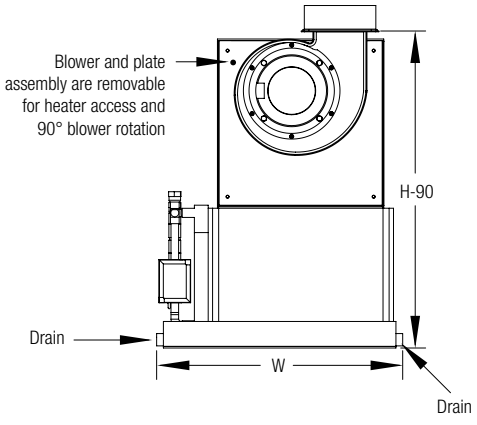
- Fits into walls.
- Unique vertical design.
- Minimal depth.
- DC blower provides strong, quiet performance.
- Blower rotates to vertical or horizontal positions for ducted applications.
- Electric heater included.

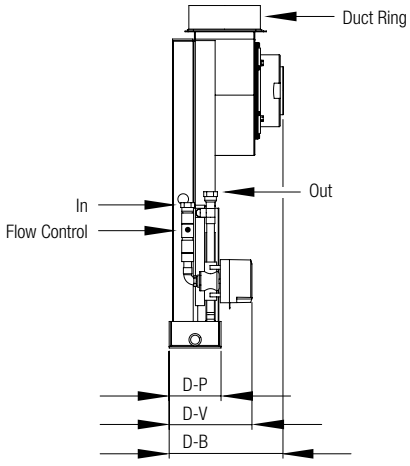
Technical Specifications for ATV Air Handlers

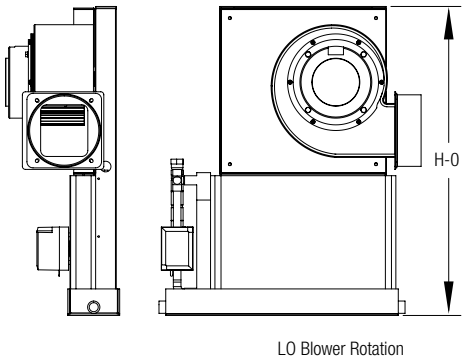
Model	ATV9DC	ATV12DC
Capacity (BTU/Hr)	9,000	12,000
Voltage	208-230/50-60/1	208-230/50-60/1
Amps (FLA) Cool	2.8	2.8
Optional Heater KW	1	1.5
Heater Amps	4.3	6.5
Amps (FLA) Heat	7.1	9.3
Without Electric Heat	5	5
With Electric Heat	10	10
Water Flow, GPM (liters/min)	2.25/8.5	3/11
Air Flow, CFM (m^3/hr)	200/340	400/680
External static pressure (in H2O/Pa)	2.9/720	2.6/650
Height (in/mm)	26/660	26/660
Width (in/mm)	25.4/645	25.4/645
Duct Ring Diameter (in/mm)	6/152	6/152
H-90 (in/mm)	26/660	26/660
H-0 (in/mm)	25.4/645	25.4/645
D-P (in/mm)	4.3/110	4.3/110
D-V (in/mm)	6.8/170	6.8/170
D-B (in/mm)	9.4/240	9.4/240
Minimum Supply Air Outlet (in^2/cm^2)	49/320	70/450
Minimum Return Air Inlet (in^2/cm^2)	98/630	130/840
Drain Connections, Female NPT	1/2"	1/2"
Chilled Water Connections, Female NPT	1/2"	1/2"
Net Weight (lb/kg)	31/12	31/12
Gross Weight (lb/kg)	40/15	40/15

Notes:

Blower amps will be reduced at lower speed/cfm/static pressure. Dimensions are ± 0.3 inches or 8 mm.







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L–2563 Rev. 20080829

Dometic Cruisair®

AT-MU Air Handlers

For Use In Fresh Air Make-Up Systems

ATMU 36 and ATMU 24 models shown

AT-MU air handlers are designed for use in fresh air make-up (FAMU) systems where outside air is drawn in by the air handler, cooled, dehumidified, and reheated to room temperature, and then ducted to various areas in the vessel.

The unit consists of a water coil, valve, electric heater, and a blower mounted on a condensate pan/chassis with rubber isolation mounting feet.

A specially designed water coil cools and dehumidifies the outside air in one pass, and is coated, along with the blower and sheet metal, to prevent corrosion. A motorized 3-way bypass valve controls the flow of circulated water through the coil. The high static pressure blower has a high-efficiency internal motor, and can be rotated as required for installation. An electric heater, with redundant over-temperature protections, is included to reheat the cooled air up to a comfortable temperature.

The sloped "Positive-Flow" condensate pan reduces standing water, and is lined with anti-fungal, anti-slosh foam. An optional modulating loop-water flow control regulates the water through the unit to ensure proper water distribution to all air handlers.

Cruisair AT-MU units are available with an integrated "Pulse Heat" control, either in 208VAC or 230VAC, or they can be ordered without a control, and a separate SMX control (with the humidistat option) can be used.

Key Benefits

- Compact design.
- Corrosion resistant coating on evaporator coil, blower, and sheet metal sloped "Positive-Flow" drain pan with anti-slosh, anti-fungal foam.
- Vibration isolation mounting feet.
- Rotatable, high-efficiency internal-motor blower.
- Integrated 3-way bypass valve with easy-change power head.
- Electric heat with two-stage electric heat overload.
- Heater assembly accessible from top or side.
- Large coil shroud volume for optimum performance.
- Washable air filter.
- Brass hose barbs included for loop water connections.
- Remote air bleeder on 6ft (1.8m) of flexible tubing with ball valve.
- Water pressure test ports for troubleshooting.
- Modulating flow control ensures proper water distribution.
- Hose adapter included for round flex duct connection.
- ISTA Level IIIA certified packaging.

Options

- Terminal strip style junction box for use with SMX instead of SCR-based controls. Precise voltage (i.e., 208 or 230) need not be specified with this option.

Technical Specifications for AT-MU Fresh Air Make-up Air Handlers

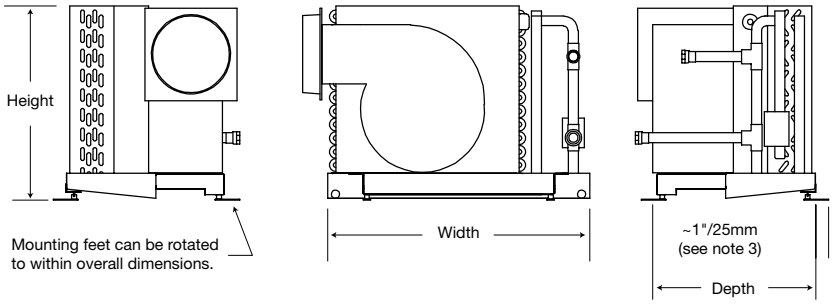
Model [1]	AT18HVZ-1.5KW-MU	AT24HVZ-2KW-MU	AT36HVZ-4KW-MU
Capacity (BTU/Hr)/(Kcal/Hr)	17,000/4,284	27,000/6,804	53,000/13,356
Voltage @ 50-60Hz/1Ph[2]	230	230	230
Amperage (FLA)	7.4	9.5	19.1
Max. Fuse/Min. Circuit Ampacity	10/8	10/10	20/20
Electric Heaters Size (kW)	1.5	2.0	4.0
GPM/(liters/min.)	4.5/17.0	6.0/22.7	9.0/34.1
CFM/(M3/HR.) Nominal	174/296	276/469	550/935
External SP (in. H2O/eq. Pa)	0.72/180	0.36/90	0.75/190
Dimensions (in/mm)[3]			
Height	15.0/380	16.6/422	19.5/495
Width	20.3/514	22.6/575	26.6/676
Depth	12.3/311	15.3/387	18/457
Supply Air Duct Diameter	5/125	6/150	8/200
Return Air Inlet (sq in/cm)	100/645	140/900	220/1400
Loop Water Connections	1/2" FPT with 5/8" brass HB		1" FPT with 1" brass HB
Drain Pan Connections	1/2" FPT with PVC 5/8" brass HB		
Net Weight (lbs/kg)	34/15.5	41/18.6	63/28.6
Gross Weight (lbs/kg)	38/17.3	55/25.0	69/31.4

Notes:

[1] Electrical and blower data is based on 50Hz performance.
[2] Verify voltage! Units with SCR-based controls are designed for either 208VAC or 230VAC. Add "208" to the end of the model number for 208VAC units.
[3] Rotatable feet affect the final dimensions. front feet add 1.5" to the front, or 1.1" to both sides. Rear feet do not add to the width or depth when rotated to the side.

Interpreting Model Numbers

AT	24	HV	Z	-FC	-2KW	-MU	-NOCNTL
"AT" Style Air Handler	Size	High Efficiency Blower	Voltage: Z = 230 VAC (unless MU208)	FC = Flow Control Blank = No	KW of Elec Heat	Fresh Air Make-up	Voltage: 208 VAC only[2]



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L–2403 Rev. 20080502

Dometic Cruisair®

Rotary Switch Assemblies for DX & TW

Mechanical Control Over Basic AC Functions

SA4A-ZB & SSA3-ZB shown

Cruisair electromechanical rotary-knob switch assemblies provide conventional control over basic air conditioning functions. Both 115V and 230V switches are available. The standard design is an aluminum plate covered with a modern black plastic overlay with text and graphical representations of the various functions. Many different configurations are available:

Standard three-knob assemblies provide function selection (OFF-FAN-RUN), fan speed control, and a room thermostat (with a 10' capillary tube). For tempered water systems, a special thermostat on the air handler allows automatic changeover between heating and cooling modes.

A two-knob control for tempered water systems features function control (OFF-FAN-RUN) and fan speed control. It is used with a remote thermostat, or in situations where a thermostat is not needed, such as in an engine room or on a makeup air handling unit with a bypass valve.

Single-knob switch assemblies control fan speed (either variable or 2-speed) and offer two operational modes: In the ON position, the fan will run continuously; in the AUTO position, the fan will cycle on and off with the compressor.

A four-knob assembly is available for DX systems, allowing control of an auxiliary electric heater. Functions are: system mode (OFF – FAN – RUN), heat mode (Reverse Cycle or Aux. Heat), thermostat, and fan speed.

Switches are also available for use with auxiliary heat modules, but an HRX type heat relay may be needed in certain cases.

Key Benefits

- Electromechanical Rotary Switches.
- Black plates with modern graphics.
- For use with variable or 2-speed blowers.
- Wiring connections via color-coded terminal strip; six-pin plugs used for self-contained DX systems.
- 115 or 230V.
- Auxiliary heat controls available.
- Multiple configurations for different uses.
- Vertical and horizontal versions.

ISO 9001:2000

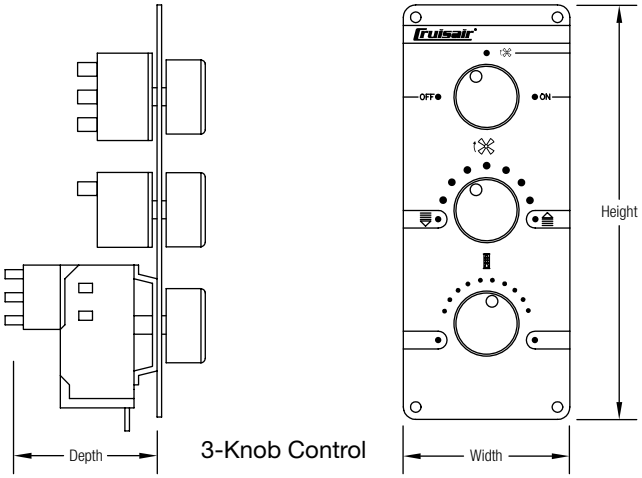
Cruisair®

Technical Specifications for Rotary Switch Assemblies

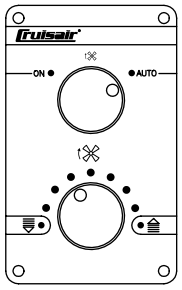
Model	Type of Switch	Volts	Fan-Speed Control	Type of Connection	Height (in/mm)	Width (in/mm)	Depth (in/mm)
Rotary Switch Assemblies for Direct Expansion AC Systems							
SSA3-ZB SSA3-ZCB	3-Knob	115 230	Variable	Plug	7.25/184	2.88/73	3.5/89
SA3-ZB10 SA3-ZCB10	3-Knob	115 230	Variable	Term. Strip	7.25/184	2.88/73	3.5/89
SA3-BB10 SA3-BCB10	3-Knob	115 230	2-Speed	Term. Strip	7.25/184	2.88/73	3.5/89
SA4-ZB SA4-ZCB	1-Knob	115 230	Variable	Term. Strip	3.75/95	2.88/73	2.25/57
SA4-BB	1-Knob	115	2-Speed	Term. Strip	3.75/95	2.88/73	2.25/57
SA4A-ZB SA4A-ZCB	2-Knob	115 230	Variable	Term. Strip	5.13/130	3.13/80	3.0/76
SA5-ZB10 SA5-ZCB10	4-Knob	115 230	Variable	Term. Strip	7.82/198	2.88/73	3.5/89
Rotary Switch Assemblies for Tempered Water AC Systems							
TSE-TZB	3-Knob	115	Variable	Term. Strip	7.25/184	2.88/73	3.5/89
TSE-TZCB	3-Knob	230	Variable	Term. Strip	7.25/184	2.88/73	3.5/89
TS3-ZCB1	3-Knob	230	Variable	Term. Strip	7.25/184	2.88/73	3.5/89
TSR-TZB	2-Knob	115	Variable	Term. Strip	5.13/130	3.13/80	3.0/76
TSR-TZCB	2-Knob	230	Variable	Term. Strip	5.13/130	3.13/80	3.0/76
TS1A-BXB	1-Knob	115/230	2-Speed	Term. Strip	3.75/95	2.88/73	3.0/76

Notes:

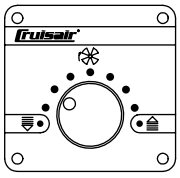
- Most 3-knob switches are also available in a horizontal configuration (2.88" H x 7.25" W). These switches will have a letter "H" in the model number.
- TSEH and switches are available for use with auxiliary heating modules.
- The fan current on variable speed switches must not exceed four amps.



3-Knob Control



2-Knob Control



1-Knob Control

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L–0243 Rev. 20080829

Dometic Cruisair®

SMX Series Control Systems

Microprocessor Systems for DX

Photo courtesy of Cruisers Yachts

SMXir Keypad/Display
with Remote Control

Cruisair offers two different SMX microprocessor control systems for use with direct expansion (DX) air conditioning systems. SMX II offers all the standard operational and safety features required for most DX systems, SMX Net adds networking capability and other special features that make it unique in the industry. The SMX II or SMX Net power/logic board comes installed on the designated self-contained unit or condensing unit, or either system can be retrofitted in the field to replace an electromechanical switch assembly. The SMXir keypad/display and optional SMXir remote is used on both SMX II and SMX Net systems.

Normal operation consists of simply turning the system on by pressing either the Cool or Heat buttons and adjusting the desired cabin temperature setpoint. Fan speed is automatically controlled (fan speed decreases as room temperature approaches setpoint), or the fan speed can be manually set.

The dehumidification mode can be used to operate the system on a timed basis so that the boat will stay ventilated and dry even when no one is aboard.

Line voltage and refrigerant high and low pressure switches are constantly monitored and if a problem is detected, the system will shut down and display a fault on the keypad/display.

Many of the factory settings can be changed to allow the user to fine-tune the system to best match the boat and personal preferences. (See the chart on the back for a list of programmable functions.)

Key Benefits

- Works with SMXII or SMX Net Control Systems
- Optional Remote Control
- Automatic/Manual Fan Speed Control
- Optional 2-Speed Fan (SMX Net only)
- Inside Temperature Display
- Outside Temperature Display (SMX Net only)
- Dehumidification (absent) Program
- Nonvolatile Memory
- Low Voltage Shutdown
- High Pressure Shutdown
- Low Pressure Shutdown
- Fault Display
- Software Update Capability (SMX Net only)
- Remote System Control (SMX Net only)
- Slaving Capability (SMX Net only)
- Optional Convenience Panel (SMX Net only)
- Auxiliary Heat Control (SMX Net only)
- Brightness Control

ISO 9001:2000

L–2088 Rev. 20080829

Cruisair®

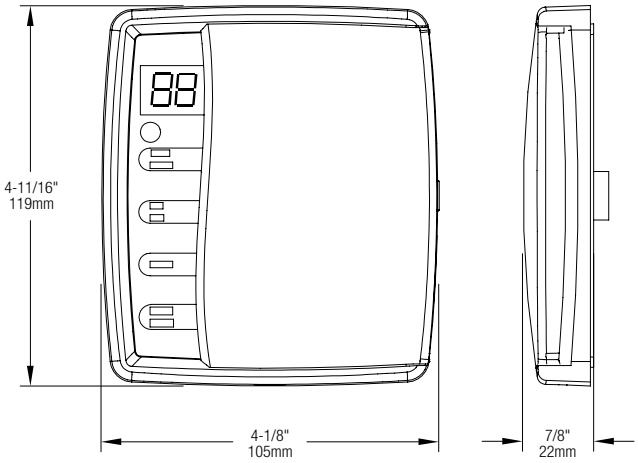
A nonvolatile memory retains current operation mode and all programmable settings when power is turned off or lost, such as when changing from generator to dock power. The programmable compressor time delay function will prevent multiple units from starting at the same time when power is restored.

In addition to all of the standard SMX functions listed above, the SMX Net system allows multiple units to be networked together for central control. Each unit in the network has a unique ID number, and any unit can be accessed and controlled from any other control in the network. SMX Net also permits one unit to be "slaved" to another so that only one keypad can be used to control multiple units in a large cabin. Additional SMX Net features include outside temperature display, auxiliary (electric) heat control, 2-speed fan control, and an optional SMX Net Convenience Panel, from which the entire network can be easily accessed and controlled with a single keystroke to go into one of four programmed modes.

The **SMXir** keypad/display has an attractive, compact housing with easy surface-mount installation. A large, easy-to-read LED display shows cabin temperature, setpoint, programming prompts, and fault code warnings, and small LEDs and backlit text indicate system status. Under a decorative hinged door is the familiar SMX 10-button arrangement with clearly labeled keys for single-keystroke operation. An optional infrared remote control is available that allows system adjustments to be made remotely.

The SMXir keypad/display can be used with either SMX II or SMX Net control systems. A complete system consists of a power/logic module (either SMX II or SMX Net), an SMXir keypad/display, CXP connecting cable and a TSEP temperature sensor. Additional components will be needed to network multiple SMX Net units, including: CNP network cables, one TSEP outside temperature sensor, and the optional SMXir Convenience Panel (the convenience panel kit includes a SMXir keypad/display connected to a SMXir Convenience Panel).

Specifically designed for the marine environment, the SMXir features a plastic housing, sealed membrane keypad, and electronics with anticorrosion coating. Housings are available in black or white, and with either a 3/4 or full coverage door.



Front View | Side View | Mounting Plate

Programmable Functions

- Fahrenheit/Celsius Display
- Low Fan Speed Adjustment
- High Fan Speed Adjustment
- Compressor Time Delay
- Compressor Response Differential
- Fan Response Differential
- Continuous/Intermittent Fan
- Line Voltage Calibration
- Temperature Sensing Calibration
- Factory Memory Reset
- Dehumidification Cycle Parameters

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L–2088 Rev. 20080829

Dometic Cruisair®

SMXht Keypad/Display

Operates Both DX & TW AC Systems

SMXht Keypad/Display
with bronze Vimar bezel

Cruisair introduces SMXht, the latest in our line of SMXII series keypad/displays. The SMXht is a microprocessor-based controller designed for use with the SMX II-HV power/logic board. It is operable with both DX and TW systems and can be retrofitted to existing SMXII type systems in the field. The control is dual 115/230 voltage and operates at 50 or 60 cycles. Functionally, it is identical to our current SMXir keypad/display (sans remote), but is easier to program and operate.

The new SMXht is available in gray or white and has a sleek, modern European design. Two popular decorative snap-on bezels, Vimar® Idea or Gewiss® *Playbus*, are available for the keypad/display. The Gewiss bezel snaps directly onto the display; the Vimar bezel requires the use of two "wings" (included) to snap onto the display. (Bezel styles are limited, and are sold separately.) The keypad/display features raised buttons for easy access and control and an attractive, blue backlit LCD. The blue LCD has three levels of brightness or a programmable sleep mode in which the display is darkened automatically when not in use. With these new features, programming and operation is simple and easy. Installation is also uncomplicated; see the back of this sheet for a detailed diagram.

Normal operation consists of simply turning the system on by pressing the Power button and adjusting the desired cabin temperature setpoint. Fan speed is automatically controlled, (fan speed decreases as room temperature approaches setpoint), or the fan speed can be manually set. The modes available are: Cool, Heat, Auto Switchover (automatically switches from Cool to Heat Mode), or Dehumidification Mode. The dehumidification mode can be used to operate the system on a timed basis so that the boat will stay ventilated and dry even when no

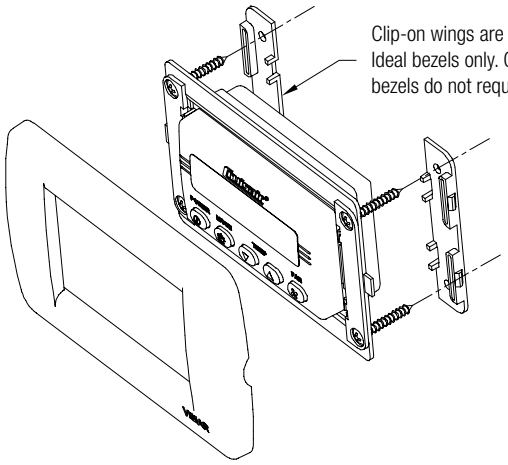
Key Benefits

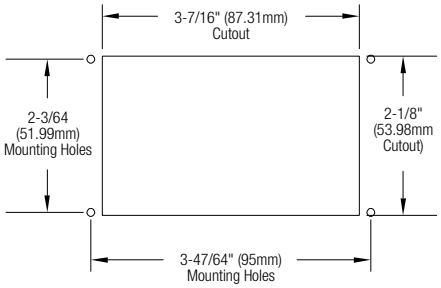
- Sleek modern Euro design
- Supports certain Vimar or Gewiss bezels
- Backlight and Sleep Modes
- Controls both DX and TW systems
- World First Technology
- Automatic Dehumidification
- Complete System Monitoring
- Supports Auxiliary Heat for TW systems
- Pressure Switch Testing
- Low Voltage Protection

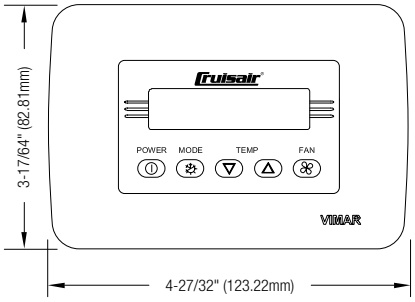
one is aboard. Aux (electric) Heat Mode is available for TW systems.

SMXht offers the same outstanding a/c system protection as our other SMXII series controls. Line voltage and refrigerant high and low pressure switches are constantly monitored. If a problem is detected, the system will shut down and display a fault code on the keypad/display. A nonvolatile memory retains current operation mode and all programmable settings when power is turned off or lost, such as when changing from generator to dock power. The programmable compressor time delay function will prevent multiple units from starting at the same time when power is restored.

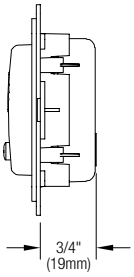
Many of the factory settings can be changed to allow the user to fine-tune the system to best match the boat and personal preferences. (See the list of programmable functions.) A complete system consists of a power/logic module (the SMX II-HV), keypad/display, CXP connecting cable and a TSEP temperature sensor.



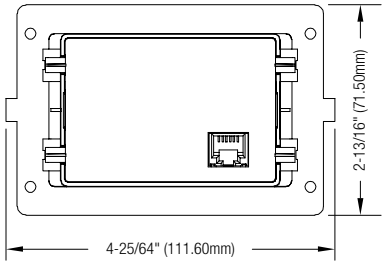




Front view shown here with Vimar Ideal bezel. Gewiss Playbus bezels are also availalbe. All bezels are sold separately.



Side view (no bezel)



Rear view showing location of CXP cable connection

Programmable Functions

- Backlight Mode
- Select DX or TW power/logic board
- Fahrenheit/Celsius Display
- DX Compressor Time Delay
- Fan Response Differential
- Low and High Fan Speed
- AC Line Voltage Calibration
- Temperature Calibration
- HU Dehumidification
- High to Low Speed Adjustment
- Software Version
- Software Revision
- LED Segment Test
- Select SMXII power/logic board. (SMX Net will be supported in the future.)

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L–2376 Rev. 20080829

Dometic Cruisair®

Ship-Wide Network Capable

Q-Logic Controls for DX & TW

Qht & Q3 Keypad/Display

Qht display with Vimar® bezel shown

The Cruisair® Q-Logic Control System is designed for use with both Direct Expansion (DX) and Tempered Water (TW) air conditioning systems. This dual microprocessor-based control consists of a new power/logic circuit board in the system's electrical box that operates with Qht and Q3 displays.

An optional CAN-bus network adapter is available for new Q-Logic systems and as a retrofit for existing installations. Supporting both the Qht and the Q3 controls, this adapter provides ship-wide network monitoring and controlling of multiple DX systems or air handlers. The CAN-bus adapter adheres to CAN-bus Standard 2.0B and is fully ISO compliant. It is available in two CAN-bus communication protocols to support connection to several popular helm and cabin touchscreen control systems.

The **Qht** high technology display is European in style, fits into an assortment of decorative bezels, has many new features, and is designed for user-friendly, logical operation. The Qht display features raised buttons for easy access and control and an attractive blue backlit LCD.

The **Q3** display is rectangular with a bezel look and LED display window. Designed as an economical version of the Qht, the Q3 features a sturdy, smooth, black plastic case with attractive white lettering, and raised buttons for easy access. Like the Qht, the Q3 was developed for user-friendly, logical operation.

The Qht and Q3 are compatible only with Q-Logic boards and are not backward compatible with SMX II systems. Both displays have three levels of brightness and a programmable sleep mode in which the display dims automatically when not in use.

(Continued on reverse side)

Key Benefits

- Easier menu-based programming.
- Smarter error/fault codes.
- Timed setting for air filter replacement.
- Automatic dehumidification.
- Optional humidity sensor to monitor and control relative humidity.
- Optional outside-temperature sensor.
- Optional electric heat package.
- Better serviceability with separate off-board compressor triac.
- Inside temperature sensor and display cable are identical to SMX platform.
- Optional CAN-bus network adapter for monitoring and controlling multiple DX systems or TW air handlers.
- Q3 has a small surface-mount display with a simple four-button interface.
- The Qht supports both Vimar® Idea or Gewiss® Playbus Euro-style bezels in a wide variety of colors.
- The Qht's elegant, panel-mount design can be installed in the same cutout as the SMX II SMXht, however it must be operated by a Q-Logic board.

ISO 9001:2000

L–2642 Rev. 20080929

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A dehumidification mode operates the system on a timed basis so the boat stays ventilated and dry even when no one is aboard (optional elecric heat package recommended). For more precise control over relative humidity, install the optional dual-purpose humidity/ temperature sensor, then input the relative humidity level you want the system to maintain.

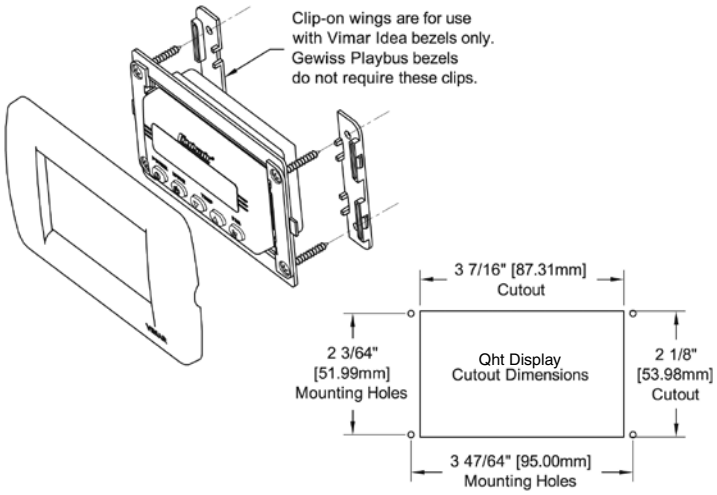
The Qht and Q3 also operate the Aux Heat mode.

Auxiliary heat is standard on TW systems and optional on DX systems. If the optional water-temperature sensor is installed, Q-Logic provides an automatic change-over function from cooling to heating.

Q-Logic Control Systems are offered on Cruisair StowAway Turbo self-contained air conditioners and sold as a retrofit upgrade for existing product installations through the Cruisair dealer network.

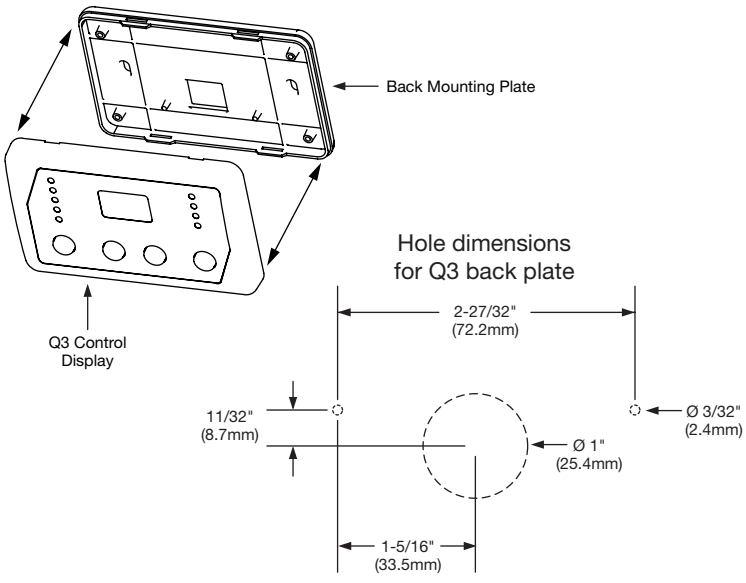
Specification Details for Qht Display

Model	Qht Display & Bezel
Control Cutout Dimensions (in/mm)	
Height, Mounting Holes	2.05/52.0
Width, Mounting Holes	3.73/95.00
Height, Back of Control	2.13/54.0
Width, Back of Control	3.44/87.3
Control Actual Dimensions (in/mm)	
Height, Back of Control	2.81/71.5
Width, Back of Control	4.39/111.5
Depth, Side of Control, no bezel	0.75/19.0
Vimar Idea Bezel Actual Dimensions (in/mm)	
Height	3.27/83.0
Width	4.84/123.0


Clip-on wings are for use with Vimar Idea bezels only. Gewiss Playbus bezels do not require these clips.
3 7/16" [87.31mm] Cutout
2 3/64" [51.99mm] Mounting Holes
Qht Display Cutout Dimensions
2 1/8" [53.98mm] Cutout
3 47/64" [95.00mm] Mounting Holes

Specification Details for Q3 Display

Model	Q3 Display
Width Between Mounting Holes (in/mm)	2.84/72.1
Hole Size in bulkhead for CXP cable connection (in/mm)	1.00/25.4
Control Actual Dimensions (in/mm)	
Height	2.53/64.2
Width	3.50/89.0
Depth	0.75/19.0



Q3 display for DX shown

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L–2642 Rev. 20080929

Dometic Cruisair®

SMX Series Controls

For Modulating Air Conditioning Systems

SMXir Keypad/Display
with Remote Control

Modulating System Controls

Each cooling unit in a modulating system requires its own separate control. There are two control options; the SMX II microprocessor control system or a 3-knob electromechanical switch assembly.

SMX II Control System

The following components are required for each cooling unit: PLHMX-HV power/logic module, SMXir keypad/display, CXP connection cable, and a TSEP temperature sensor.

The power/logic module includes a 3 ft (.9m) wire harness to connect to the cooling unit junction box. The CXP cable, available in many different lengths, connects the SMXir keypad to the P/L module. The TSEP temperature sensor, also available in different lengths, plugs into the P/L module and the sensor bulb is installed in the return air path of the cooling unit.

The SMXir keypad/display has an attractive, compact housing and includes a mounting plate for easy surface-mount installation. A large, easy-to-read LED display shows cabin temperature, setpoint, programming prompts, and fault code warnings. Small LED's and backlit text indicate system status. Under a decorative hinged door is the familiar SMX 10-button arrangement with clearly labeled keys for single-keystroke operation. An optional infrared remote control is available that allows system adjustments to be made remotely.

(Continued on reverse side)

SMX II Key Benefits

- Works with SMXir Keypad/Display.
- Works with SMXir Remote.
- Automatic/Manual Fan Speed Control.
- Inside Temperature Display.
- Auxiliary Heat Control.
- Dehumidification (absent) Program.
- Nonvolatile Memory.
- Fault Display.
- Brightness Control.

SMX II Programmable Functions

- Factory Memory Reset
- Fahrenheit/Celsius Display
- High Fan Speed Adjustment
- Low Fan Speed Adjustment
- Setpoint Differential
- Fan Response Differential
- Continuous/Intermittent Fan
- Temperature Calibration
- Dehumidification Cycle

ISO 9001:2000

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Specifically designed for the marine environment, the SMXir features a plastic housing, sealed membrane keypad, and electronics that have an anticorrosion coating. Housings are available in black or white, and with either a 3/4 or full coverage doors.

Normal operation consists of simply turning the system on by pressing the COOL or HEAT buttons and adjusting the desired cabin temperature setpoint. Fan speed is automatically controlled (fan speed decreases as room temperature approaches setpoint) or can be set manually. Note that the modulating system is cooling only, and the cooling unit must have the optional electric heater to provide heat.

Many of the factory settings can be changed to allow the user to fine-tune the system to best match the boat and personal preferences. (See the chart on the back for a list of programmable functions.) A nonvolatile memory retains current operation mode and all programmable settings when power is turned off or lost, such as when changing from generator to dock power.

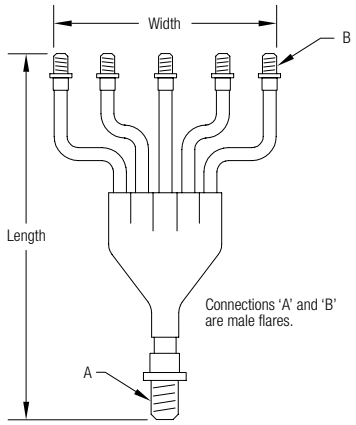
3-Knob Switch Assemblies

Two different switch assemblies are available for modulating systems. The MS5 is for units with electric heat, and the SA1 is for cooling only systems. Both have three rotary knob controls: mode, variable fan speed, and a thermostat. The thermostat has a 10 ft (3m) capillary tube that must be routed to the return airflow of the cooling unit. A 3' (.9m) wire harness and color-coded terminal strip is also included.

Dimensions for Refrigerant Distributors

Dimension	DD6-4 (in/mm)	SD8-6 (in/mm)
Length	7.5/191	9.0/229
Width	4.5/114	7.0/178
A Connection	3/8"	3/4"
B Connections	1/4"	1/2"*

*SD8-6 has 1/2" male flares with 3/8" reducing flare nuts.



Refrigerant Distributors

Cruisair offers five-way distributors to split the condensing unit refrigerant lines to multiple cooling units. The use of these distributors can help provide equal refrigerant flow to each unit. To better accomplish this, the distributors should be located so that the tubing running to each cooling unit are close to equal in length. Depending on the installation, the installer may prefer to use multiple “Tee” fittings instead.

The DD6-4 discharge distributor has a 3/8" male flare inlet connection, and five 1/4" male flare outlets. The SD8-6 suction distributor has a 3/4" male flare inlet, with five 1/2" flare outlets. Flare nuts are provided, as are flare sealing caps so if less than five units are connected, the other ports do not need to be used. The flare nuts on the suction distributor are 3/8" reducing nuts, that will allow 3/8" copper tube to be connected to the 1/2" flare fittings. If a 1/2" tube is to be connected, a standard 1/2" flare nut will be required.

Additional configuratinos are available. Please contact the Dometic Applications department for availability.

Interpreting Model Numbers

DD or SD		8	6	(3)
Discharge Distributor	Suction Distributor	Inlet (1) 8/16" or 1/2"	Outlet(s) 6/16" or 3/8"	Three Outlets

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Dometic Cruisair®

Tempered Water Logic Control

Advanced Monitoring & Control

MPE-XC Single Unit Control Panel
with TWLC keypad/display

The Tempered Water Logic Control (TWLC) is an advanced microprocessor chiller control specifically designed for marine circulated water systems. The TWLC system maximizes system performance, protects the chillers with advanced fault protection monitoring and shut-down routines, and has easy menu-driven operation supplying the user with important system information. System redundancy and easy field repair were the priorities when the TWLC was developed. Each chiller in a TWLC system has a dedicated power/logic board, and the boards are networked together to form an integrated system (automatically controlling up to 6 chillers). This design means that a single board or network failure will not shut down the entire system. The P/L board has board-mounted LEDs to help with troubleshooting, replaceable EPROM for software upgrades, and plug-in terminal strips and RJ-12 jacks which allow for quick field installation. Interaction with the system is through the TWLC keypad/display. A simple 4-button keypad is used to change operation mode and to navigate through the menus to view and change system parameters. A backlit LCD display supplies easy to read information about the system, including water temperatures, operation mode, which chillers are running, and other detailed information. Three small LEDs on the keypad clearly indicate Cool or Heat modes, and faults. An alarm buzzer on the keypad can also signal a fault. Additional TWLC keypads can be installed to allow remote system access.

Key Benefits

- Up to 6 tempering units can be integrated into one network
- Keypad/Display has a 4-button control and a 4-line backlit LCD display
- Multiple keypad/displays can be used for remote access
- Multi-unit panels come with circuit breakers for compressor and pump control
- Chiller staging based on circulated water temperature
- Compressor rotation to equalize run time of each unit
- Compressor and pump time delay to prevent simultaneous starting
- Records and logs faults and run times

Advanced Options

- Connect to an on-board computer or modem
- Current transducers to monitor compressor and pump amperage
- Seawater temperature sensors
- Refrigerant pressure transducers
- Loop water and seawater pressure transducers
- Control an optional source of heat (electric immersion heater or fuel-fired boiler)
- Remote unit shutdown for loadshedding
- Fault signal output for remote alarm

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Set up and operation of the TWLC is fully automatic. It senses how many units are connected and programs the temperature staging and unit rotation of the units to pre-programmed parameters. The TWLC board has non-volatile memory so settings and recorded information are not lost even if power is interrupted. The large memory capacity allows the TWLC to record run time of the compressors and pumps, and store the fault history of each unit.

Another feature of the TWLC is that it can be connected to an on-board computer or modem to allow full remote access of the system. Custom software emulates the TWLC on the computer screen and navigation through the menus is identical to the TWLC keypad/display. If a land phone line is available, a modem can be connected and the system can be viewed and operated remotely, allowing a knowledgeable service agent to troubleshoot the system anywhere in the world.

Single-Unit & Multi-Unit Control Panels

The TWLC system is available in 2 different control panel options, single-unit panels and multi-unit panels. Single-unit panels are less expensive than multi-unit panels and can often be fit in spaces where a large multi-unit panel won't fit. They are also typically in stock for quick delivery. Single-unit panels are often the answer for refit jobs where the vessel's power panel already has breakers for each chiller and pump.

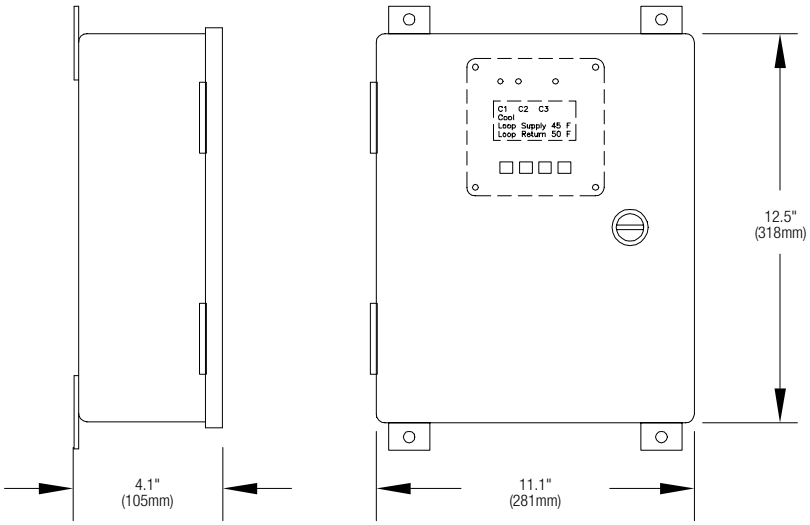
Multi-unit panels are custom built for each system with circuit breakers and contactors for up to 6 chillers and the circulation and seawater pumps. Installation is easier than with single-unit panels because separate pump relays are not needed, all the network and high-voltage wiring is provided, and only one power input from the vessel is required. With all the P/L boards, breakers, relays, etc. in one location, a multi-unit panel is more convenient to the user.

Single-Unit Panels

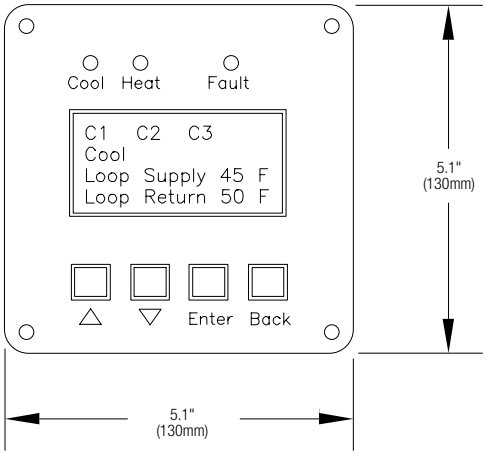
The MPE-XC will work with either 230V 1-phase compressors, or 230V – 460V 3-phase compressors. The control circuit is 230V 1ph, and a separate power feed is required on 380-460V systems. The MPE-VXC has the same features, but is for use with a variable frequency drive (VFD).

The MPE single-unit panel includes the P/L board, compressor contactor (or relay), 10 ft (3m) wire harness, control circuit fuses, and a short CNP cable to connect to a TWLC keypad/display.

In addition to the MPE single-unit panels (one per chiller), the system will require: one TWLC keypad/display, CNP network cables (one per panel), pump relays (for circulation and seawater pumps), and one temperature sensor to monitor the common loop water supply. The TWLC keypad can be installed in the door of the panel, or installed remotely (with a CNP cable). Multiple TWLC keypads (up to one per board) can be installed if desired.



MPE-XC & MPE-VXC Single-Unit Panel Dimensions



TWLC Keypad/Display Dimensions

MPE Multi-Unit Panels

Custom multi-unit panels provide breakers and relays for the compressors and pumps all on one chassis. This allows the installer to bring in one power feed for the complete system, and there are no separate pump relays to install, and many options can be built into the panel.

Each multi-unit panel includes a TWLC keypad mounted in the door, fusing for the control circuit, a transformer on 380-460V panels for the control power, and a wire harness to connect to the chillers.

Since each multi-panel is custom built , there are many options available:

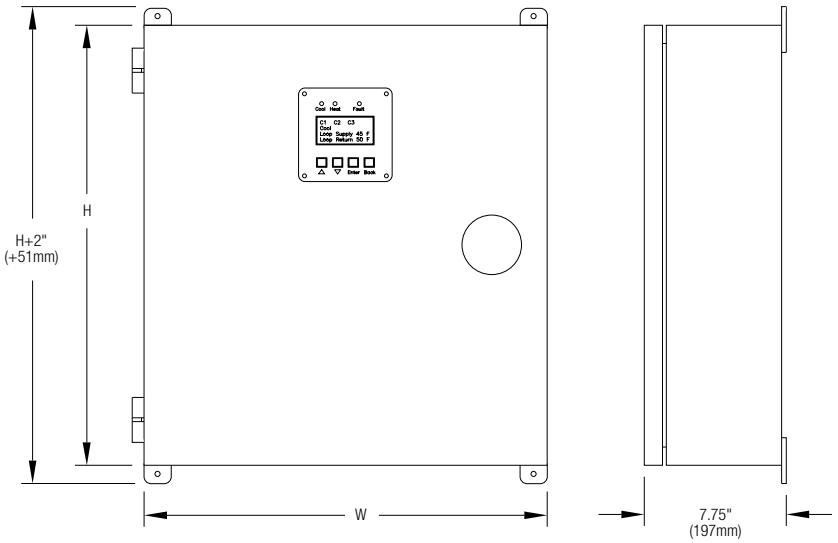
- **Spare Pump Switch** – Selector switches can be added for backup (spare) pumps.
- **Multiple Power Inputs** – Up to 3 power blocks can be installed to help divide the chiller and pump loads.
- **Auxiliary Water Heater** – If an auxiliary water heater is desired, the panel can be built with the appropriate breakers and contactors to control the heater.
- **Fault Output Relay** – A set of "dry" contacts can be installed to operate an alarm on the vessel's monitoring system.
- **Longer Wire Harness** – The standard harness is 10 ft (3m) but longer harnesses are available, up to 30 ft (9m).
- **Frame Mounted Panel** – If a framed chiller is ordered, the panel can be mounted on the frame.
- **Load Shedding** – Terminals can be provided in the panel to allow a load-shedding system to remotely shut down individual chillers.

In addition to the options above, two different upgrade packages are available for multi-unit panels.

The Level 1 upgrade package adds current transducers for the compressors and pumps, seawater out temperature sensors in each chiller, a common seawater inlet temperature sensor, and the computer and modem adapters.

The Level 2 package includes all items in Level 1, plus: high and low refrigerant pressure transducers for each chiller, a seawater pressure transducer (to install on the discharge of the seawater pump) and a loop water pressure transducer (to install on the inlet of the loop water pump).

All of the optional inputs can be added to MPE single unit panels, and there is a location for a compressor current transducer in the panel. Temperature sensor wells are also available for the common loop water supply sensor, and for the seawater out sensors.



MPE Multi-Unit Control Panel Dimensions

No. of Units	Width (in/mm)	Height (in/mm
2	22.0/560	19.3/490
3	22.0/560	24.0/610
4	30.0/760	24.0/610
5	35.0/890	24.0/610

Typical dimensions for standard panels. Options such as transducers, spare pump switches, multiple power inputs, etc. might require the next larger panel size.

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Faults

The system monitors all the inputs and will display 12 different faults based on the information received. Each fault has a specific routine that protects the unit while helping to prevent nuisance faults. Some will generate a sustained shutdown, which must be reset from the TWLC keypad.

If a fault is sensed, the fault LED on the TWLC keypad will light (and the buzzer will sound, if activated) and the specific fault will be displayed on the LCD screen. The fault signal output on the P/L boards will also be powered.

The faults monitored by the system are:

- High Refrigerant Pressure
- Low Refrigerant Pressure
- Loop Water Flow Switch
- Loop Water Temperature Differential
- Loop Water High Temperature Limit
- Seawater Out Low Limit
- Seawater Temperature Differential
- Auxiliary Heater High Limit
- Temperature Sensor Fault
- Low Control Voltage
- Network Fault
- EPROM Error

INPUTS

Each P/L board has up to 14 inputs. The six standard inputs are listed in bold. The other inputs shown *#7 - #14) are optional, and are available in pugrade packages or can be added separately.

1. Loop Water Return Temperature Sensor
2. Loop Water Out Temperature Sensor
3. Common Loop Water Supply Temperature Sensor
4. Flow Switch
5. High Pressure Switch (or Pressure Transducer)
6. Low Pressure Switch (or Pressure Transducer)
7. Compressor Current Transducer
8. Loop Water Pump Current Transducer
9. Seawater Pump Current Transducer
10. Seawater Out Temperature Sensor
11. Common Seawater Inlet Temperature Sensor
12. Loop Water Pressure Transducer
13. Seawater Pressure Transducer
14. Auxiliary Heater Temperature Sensor

OUTPUTS

There are six outputs on each board. Each line voltage (115or 230VAC) output is through a board-mounted triac which can control a relay or contactor.

1. Compressor
2. Reversing Valve
3. Loop Water Pump
4. Seawater Pump
5. Auxiliary Heater
6. System Fault

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Dometic Cruisair®

Digital Chiller Management

Total Control at the Touch of a Button

Chiller Gateway Network Interface boxes with and without graphical touch screen shown

The Cruisair Chiller Gateway lets you monitor and control system functions of a multi-staged Cruisair chiller system from a remote location via Modbus TCP/IP connection. The Gateway and optional color touch screen provide a high-speed digital interface to the chiller system for monitoring temperatures, current, pressures, input/output status, system faults/alarms, mode of operation, and system logs. In addition, the Gateway offers two-way data transmission via Modbus/TCP Ethernet protocol to the yacht's integrated network, allowing chiller operation to be handled from there.

The Gateway can also monitor the optional Variable Frequency Drive (VFD), which is used to smooth out current spikes and enhance the efficiency of the compressor.

The Gateway unit can be mounted remotely or inside the chiller control panel, and will monitor up to 5 chillers. A second Gateway can be configured to monitor a sixth chiller. The optional touch screen unit is approximately 7" X 9" (178mm X 229mm), with a 5.7" (145mm) display screen.

Key Benefits

- High-speed digital interface.
- Monitor and control multi-staged chiller from a remote location.
- Two-way data transmission via Modbus/TCP Ethernet protocol puts chiller control on yacht's integrated network.
- Monitor the optional Variable Frequency Drive.
- Configuration capable of monitoring up to 6 chillers.

Technical Specifications for Chiller Gateway Control Interface

Model	Description
763300026	Gateway unit/graphical display touch screen, monitors up to five chillers
763300027	RS485 to RS232 converter
763300025	Gateway unit with metal enclosure, monitors up to three chillers
763300028	Gateway unit with metal enclosure, monitors up to four chillers
763300029	Gateway unit with metal enclosure, monitors up to five chillers
4250021	Type I compact flash card, Type I
4250022	USB compact flash card reader

Notes:

- The amount of accessories such as serial communication cables, converter RS485 to RS232, and 23VDC power supplies will be needed, depending on the number of chillers being monitored..
- When monitoring chillers four and five, each will require an RS485 to RS232 converter (Model #763300027).

Dealer:

Environmentally Responsible

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L–2474 Rev. 20080829

Dometic Cruisair®

Run-Dry Protected Pumps

Heavy-Duty Centrifugal Water Pumps

Photo courtesy of Cruisers Yachts

PLL500 & PLL250
seawater pumps shown

Dometic's reliable, heavy-duty centrifugal pumps provide a steady flow of cooling seawater through marine air conditioning systems and crushed-ice systems. These pumps feature run-dry protection which automatically prevents pump burn out when water flow stops. The electronically commutated spherical motor is designed for continuous operation that is ultra efficient and whisper quiet.

The close-coupled, space-saving design provides easy installation, and the pump can be mounted horizontally or vertically with motor end down. For the ultimate in convenient maintenance, the motor unscrews from the mounting bracket without any disconnection of hoses. The pump's unique design has no mechanical seal to wear down or leak.

The highly efficient motor draws five times less amps than comparable pumps, so it creates less heat. A high-density ceramic ball bearing and graphite impeller bearing cap provide long pump life, and the dynamically balanced impeller operates smoothly and quietly. Also adding to the pump's longevity is its automatic protection against overload and low in-rush current. The embedded microprocessor control is self regulating.

The Dometic PLL250 handles 8 GPM and supports World Voltage of 110-240V. The Dometic PLL500 handles 15 GPM and is available in 115V and 230V. Centrifugal pumps must be mounted below the water line, and for proper operation, a scoop-type through-hull and a seawater strainer are recommended.

Key Benefits

- Run-dry protection prevents pump burn out when water flow stops.
- Electronically commutated spherical motor.
- Ultra efficient and whisper quiet.
- Remove motor without disconnecting hoses.
- Designed for long pump life.
- Less amps produce less heat.
- Lightweight construction.
- No mechanical seal.
- Automatic protection against overload and low in-rush current.
- World Voltage (PLL250) or 115V and 230V (PLL500).
- 8 GPM (PLL250) or 15 GPM (PLL500).

ISO 9001:2000

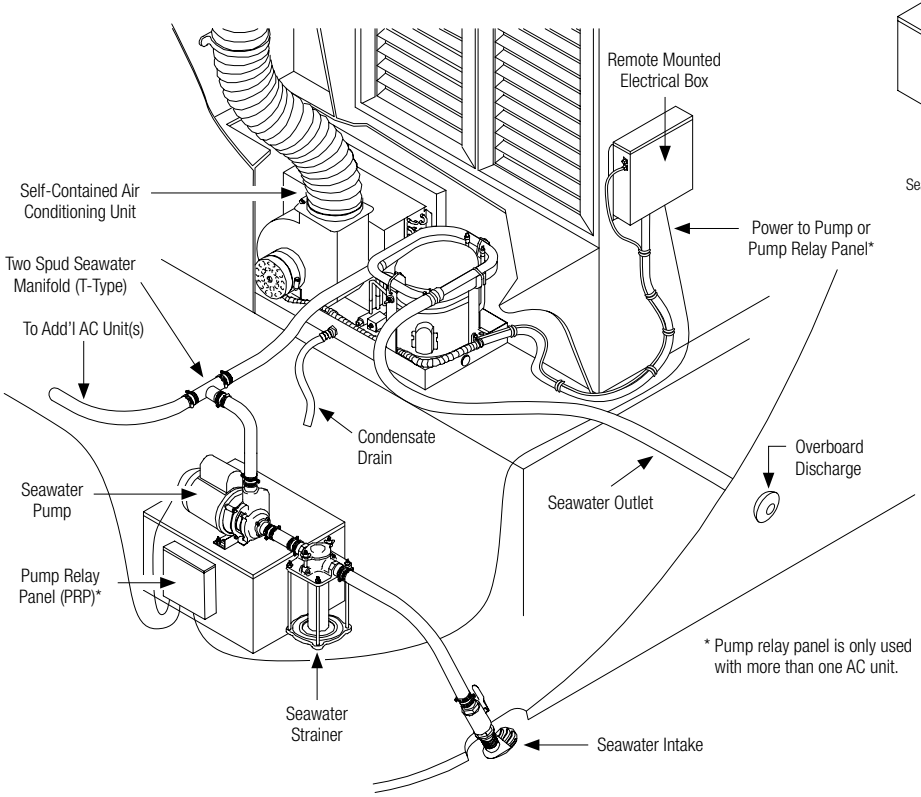
L–2650 Rev. 20090123

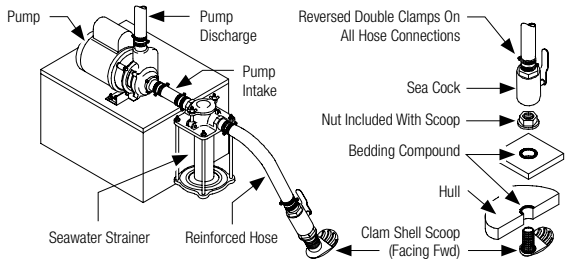
Dometic
THE SIGN OF COMFORT

Technical Specifications for Run-Dry Pumps

Model	Volts	Hz	Amps	GPM @ 3 ft. Head	Inlet x Outlet	Height (in/mm)	Width (in/mm)	Length (in/mm)	Net Weight (lbs/kg)
PLL250	115 230	50/60 50/60	.24 .17	8	½" MPT x ½" MPT	4.25/108	3.44/88	5.38/137	1.0/0.5
PLL500	115 230	50/60 50/60	.5 .3	15	¾" MPT x ½" MPT	4.88/124	4.50/115	6.00/153	3.0/1.4

Typical Installation of a Seawater Pump


Remote Mounted Electrical Box
Self-Contained Air Conditioning Unit
Power to Pump or Pump Relay Panel*
Two Spud Seawater Manifold (T-Type)
To Add'l AC Unit(s)
Condensate Drain
Overboard Discharge
Seawater Pump
Seawater Outlet
Pump Relay Panel (PRP)*
* Pump relay panel is only used with more than one AC unit.
Seawater Strainer
Seawater Intake



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Environmentally Responsible

Dometic
THE SIGN OF COMFORT

DX Seawater Pumps

Reliable & Heavy-duty Centrifugal Pumps

P3600B3X and
PML500CL shown

Cruisair specifies reliable, heavy-duty centrifugal pumps to provide a steady flow of cooling water through the air conditioning system.

The glass reinforced polypropylene head pumps have magnetic drive impellers, and are available with submersible or air cooled motors. Larger pumps have bronze heads with mechanical seals, and air cooled, drip-proof motors. A wide range of pumps and motors are available for use in different power environments.

Centrifugal pumps must be mounted below the water line. Self-priming pumps are also available for above water line applications. A scoop type through-hull and a seawater strainer are recommended for proper operation.

When more than one air conditioning unit is served by a single pump, a separate pump relay is used. To complete the installation, Cruisair can also supply water manifolds, hose, and fittings.

Key Benefits

- High capacity, centrifugal pumps.
- 250 -10,800 gph capacities.
- 115V and 230V, 60 Hz; 240V, 50 Hz; and 220/440V, 3 ph. models.
- Seawater grade construction, with glass filled polypropylene or bronze pump heads.
- Submersible or air cooled motors.
- High head pressure models available.
- Self-priming pumps available.

Technical Specifications for DX Seawater Pumps

Model	GPH @ Feet of Head	Volts	Freq. (Hz)	Phase	Running Amps	Inlet Connection	Outlet Connection	Height (in/mm)	Width (in/mm)	Length (in/mm)	Weight (lb/kg)
PML250	250@3'	115	50/60	1	1.0	3/4" MPT	1/4" MPT	5/125	5/125	6/150	7/3.2
PML500	490@3'	115	50/60	1	2.5	3/4" FPT	1/2" MPT	5.3/125	5/125	7.3/185	10/4.5
PML500CL	490@3'	230	60	1	1.0	3/4" FPT	1/2" MPT	5.3/125	5/125	7.3/185	10/4.5
PML500CK	400@3'	240	50	1	1.0	3/4" FPT	1/2" MPT	5.3/125	5/125	7.3/185	10/4.5
PMA500	500@7'	115	50/60	1	2.1	3/4" FPT	1/2" MPT	5/125	4/100	9.5/240	8/3.6
PMA500C	500@7'	230	50/60	1	1.0	3/4" FPT	1/2" MPT	5/125	4/100	9.5/240	8/3.6
PMA1000	985@3'	115	50/60	1	2.2	1" FPT**	1/2" MPT	6.1/155	4.5/115	9/230	10/4.5
PMA1000C	985@3'	230	50/60	1	1.2	1" FPT**	1/2" MPT	6.1/155	4.5/115	9/230	10/4.5
PMA1000CK	800@3'	240	50	1	1.2	1" FPT**	1/2" MPT	6.1/155	4.5/115	9/230	10/4.5
P1200BXT-SP	1200@5'	115/230	50/60	1	10.4/5.2	1" FPT	11" FPT	6.3/160	6.5/165	14.1/360	35/15.8
P1500BXT	1320@5'	115/230	50/60	1	10.4/5.2	3/4" FPT	3/4" MPT	6.3/160	6.5/165	14.1/360	28/12.7
P1500B3X	1320@5'	220/440	50/60	3	3.4/1.7	3/4" FPT	3/4" MPT	6.6/170	6.5/165	11.6/295	33/15
P3000BXT	3000@7'	115/230	50/60	1	10.4/5.2	1-1/4" FPT	1" FPT	6.3/160	6.5/165	14.1/360	32/14.5
P3000B3X	3000@7'	220/440	50/60	3	3.4/1.7	1-1/4" FPT	1" FPT	6.6/170	6.5/165	11.6/295	37/16.8
P3000BXT	3000@20'	115/230	50/60	1	10.4/5.2	1-1/4" FPT	1" FPT	6.3/160	6.5/165	14.1/360	37/16.8
P3000BX-SP	3000@30'	115/230	50/60	1	13.8/6.9	1-1/2" FPT	1-1/2" FPT	9.8/250	8.5/215	18.7/475	48/21.8
P3600BX	3600@20'	115/230	50/60	1	11.2/5.6	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	14.5/370	41/18.6
P3600B3X	3600@20'	230/460	50/60	3	2.8/1.4	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	14.5/370	41/18.6
PH4000BX	4000@30'	115/230	50/60	1	14.2/7.1	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.8/400	43/19.5
PH4000B3X	4000@30'	230/460	50/60	3	3.8/1.9	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.8/400	43/19.5
P7800BX	7800@20'	115/230	50/60	1	15.0/7.5	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	17.6/450	90/41
P7800B3X	7800@20'	230/460	50/60	3	3.4/1.7	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	17.6/450	90/41

* 3/4" FPT adapter included
** 1" TO 3/4" bushing included

Notes:

- When operating a 50/60 Hz pump at 50 Hz, the flow rate will decrease approximately 17%, while the head capability will drop as much as 30%.
- Hose fittings are not included with pumps and must be ordered separately.

Interpreting Model Numbers

P	1200	B	X	SP
PML: Magnetic drive, submersible PMA: Magnetic drive, air-cooled motor PDS: Direct drive, submersible P: Pump, mechanical seal, air-cooled motor PH: Mechanical seal, high head only	Capacity in gallons per hour	B: Bronze head No Letter: Polypropylene	No Letter: 100/115V, 50/60 Hz C: 200/230V, 50/60 Hz CL: 230V, 60Hz only CK: 220V, 50Hz X: 115/230V, 50/60 Hz 3X: 230/460V, 3-phase, 50/60 Hz	Capacity X 1,000 BTU/hr

Dealer:

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L–0242 Rev. 20080829

Dometic Cruisair®

DX Pump Relays

For Condensers Supported by a Single Pump

PR3X and PR8X Pump Relays
and TR115 Trigger Shown

Pump relays are used to control cycling of seawater pumps when more than one condensing unit is supported by a single pump. One control trigger is needed for each condensing unit.

The PR8X is a solid-state relay which supports up to eight systems. Control triggers, matched to the system control voltage, are ordered separately and added at the time of installation. Trigger circuits for both 115V and 230V systems may be installed in the same PR8X box. The PR8X is ignition protected.

The PR3X type relay is ordered with two or three pre-installed control triggers which are matched to the system voltage. The PR3X-2 can be upgraded from two to three triggers in the field. Models can be ordered for 115 or 230V control voltage and can control 115V or 230V pumps. The unit is ignition protected.

The PR4D pump relays handle up to four control triggers which are ordered separately and added at the time of installation. The PR4D is used to control 230V 3-phase pumps.

Key Benefits

PR8X

- Ignition protected.
- Up to 8 control triggers.
- 115V or 230V.
- 15 amp fuse on pump circuit.

PR3X

- Ignition protected.
- Two or three internally mounted triggers.
- 115V or 230V.
- 15 amp fuse on pump circuit.

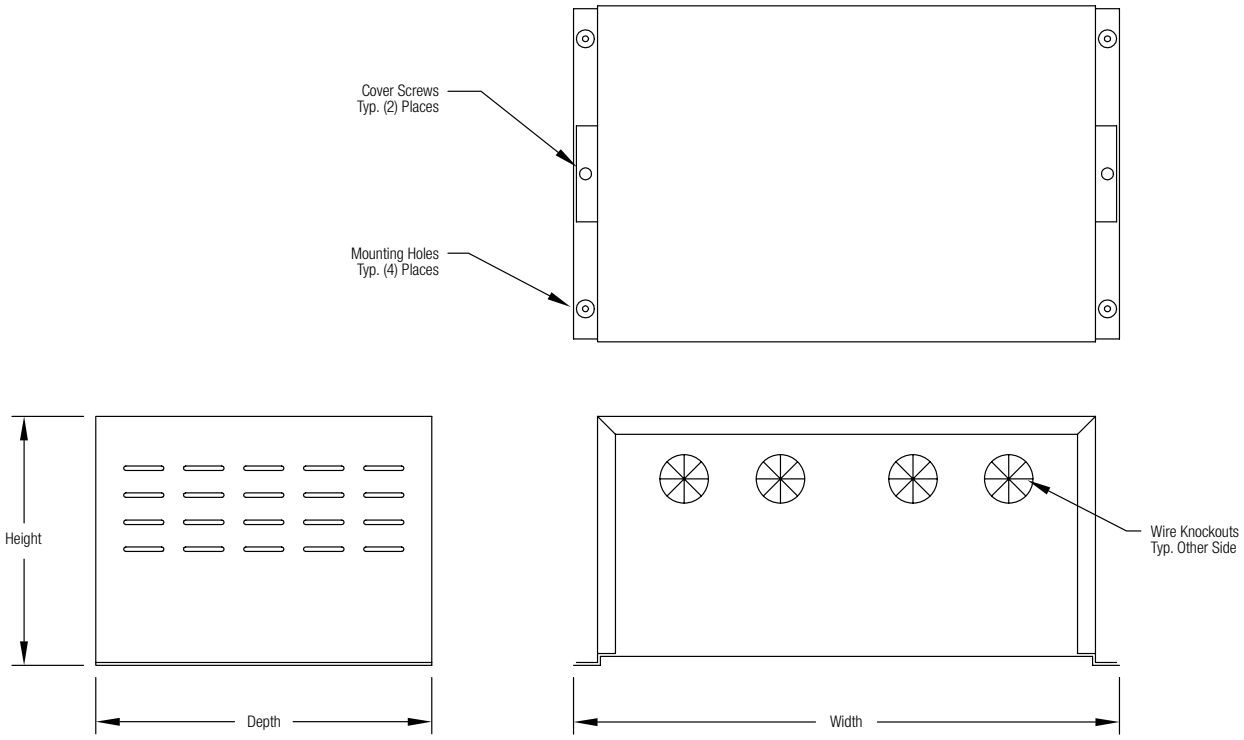
PR4D

- Up to four control triggers, ordered separately.
- Designed for 230V three-phase pumps.

Technical Specifications for DX Pump Relays

Model	Max Rated Amps	Control Voltage*	Pump Voltage (VAC)	Phase	Height (in/mm)	Weight (in/mm)	Depth (in/mm)	Weight (lb/kg)
PR3X-2 PR3X-3 PR3X-2C PR3X-3C	15	115 115 230 230	115/230	1	2.38/60	7.94/202	5.5/140	1.5/0.7
PR8X* PR8X-4 PR8X-4C PR8X-5C PR8X-6C PR8X7C	15	* 115 230 230 230 230	115/230	1	5.25/334	10.50/267	7.0/178	2.0/0.9

* Control triggers (TR115, TR230) are ordered separately depending on application.



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L–0373 Rev. 20080829

Dometic Cruisair®

Tempered Water Pumps

Reliable, Heavy-Duty Water Pumps

PH3000BX-SP and
CP0D120BX shown

Cruisair specifies reliable, heavy-duty water pumps for use in the seawater and circulated water systems. All pumps are centrifugal, with bronze and stainless components.

Pumps are available with 115/230V single-phase, or 230/460 3-phase, dual voltage motors. Most are rated for 50/60 Hz use, but special 50 Hz only pumps are also available for full performance.

Circulation pumps are sized for the total loop capacity. Cruisair design specification is 3 gpm (11.4 lpm) per 12,000 Btu/hr capacity, rated at 40' (12.2 meters) head. Seawater pumps are selected for the tempering unit capacity, at 250 gph (15.8 lpm) per 12,000 Btu/hr.

Self-priming seawater pumps are available for installations where the pump cannot be mounted below the water line, or if air is able to enter the system such as on a sailboat or high speed craft.

Pump relays are used to control each pump. The circulation pump must run whenever the system is cooling or heating, and the seawater pump is typically cycled with the tempering units.

Single-phase pumps have internal overload protection. An external overload relay should be used with 3-phase pumps.

Key Benefits

Seawater Pumps

- High-capacity, centrifugal pumps.
- Seawater grade construction.
- Single-phase 115/230V or 3 phase 230/460V dual voltage motors available.
- 50 or 60 Hz.
- Available for high head situations.
- Self-priming models available.

Circulating Pumps

- High-capacity, centrifugal pumps.
- Seawater grade construction.
- Single-phase 115/230V or three-phase 230/460V dual voltage.
- 50 or 60 Hz.
- Rated at 40' of head.

Technical Specifications for Seawater Pumps

Model	GPH @ Feet of Head	Volts	Freq. (Hz)	Phase	Running Amps	Inlet Connection	Outlet Connection	Height (in/mm)	Width (in/mm)	Length (in/mm)	Weight (lb/kg)
P1200BXT-SP	1200@5'	115/230	50/60	1	10.6/5.3	1" FPT	1" FPT	6.6/170	6.5/165	13.6/345	35/15.8
P1500BXT	1320@5'	115/230	50/60	1	10.6/5.3	3/4" FPT	13/4" FPT	6.6/170	6.5/165	14.2/360	28/12.7
PS1500B3X	1500@15'	230/460	50/60	3	2.6/1.3	1-1/4" FPT	1" FPT	8.1/205	6.5/165	15.4/390	30/13.6
PS1500BX	1500@7'	115/230	50/60	1	7.0/3.5	1-1/4" FPT	1" FPT	8.1/205	6.5/165	13.0/330	25/11.4
PS1800BX	1800@15'	115/230	50/60	1	7.0/3.5	1-1/4" FPT	1" FPT	8.1/205	6.5/165	13.0/330	25/11.4
PS2200BX	2200@15'	115/230	50/60	1	7.2/3.6	1-1/4" FPT	1" FPT	8.1/205	6.5/165	13.0/330	25/11.4
P3000BXT	3000@7'	115/230	50/60	1	10.6/5.3	1-1/4" FPT	1" FPT	6.6/170	6.5/165	14.2/360	32/14.5
PH3000BXT	3000@20'	115/230	50/60	1	10.6/5.3	1-1/4" FPT	1" FPT	6.6/170	6.5/165	14.2/360	37/16.8
PS3000B3X	3000@20'	230/460	50/60	3	2.6/1.3	1-1/4" FPT	1" FPT	8.1/205	6.5/165	15.4/390	30/13.6
PH3000BX-SP	3000@30'	115/230	50/60	1	13.8/6.9	1-1/2" FPT	1-1/2" FPT	9.8/250	8.5/215	18.7/475	48/21.8
PH3000B3X-SP	3000@20'	230/460	50/60	3	3.4/1.7	1-1/2" FPT	1-1/2" FPT	9.8/250	8.5/215	18.7/475	48/21.8
P3600BX	4200@20'	115/230	50/60	1	11.2/5.6	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	14.5/370	41/18.6
P3600B3X	4200@20'	230/460	50/60	3	2.8/1.4	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	14.5/370	41/18.6
PH4000BX	4200@30'	115/230	50/60	1	14.2/7.1	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.8/400	43/19.5
PH4000B3X	4200@30'	230/460	50/60	3	3.8/1.9	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.8/400	43/19.5
P7800BX	7800@18'	115/230	50/60	1	15.0/7.5	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	17.6/450	90/41
P7800B3X	7800@18'	230/460	50/60	3	3.4/1.7	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	17.6/450	90/41
P10500B3XK	10500@20'	380	50	3	5.4/2.7	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	18/457	100/45.5
P10800BX	10800@20'	115/230	50/60	1	14.2/7.1	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	18/457	100/45.5
P10800B3X	10800@20'	230/460	50/60	3	5.2/2.6	2-1/2" FPT	2-1/2" FPT	10/255	8.5/215	18/457	100/45.5

Technical Specifications for Circulating Pumps

Model	Capacity* (BTU/hr)	Volts	Freq. (Hz)	Phase	Running Amps	Inlet Connection	Outlet Connection	Height (in/mm)	Width (in/mm)	Length (in/mm)	Weight (lb/kg)
CPOD80BX	80,000	115/230	60	1	7.8/3.9	1-1/4" FPT	1" FPT	6.5/165	6.5/165	12.8/325	24/11
CPOD120BX	160,000	115/230	60	1	11.2/5.6	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	14.5/370	41/18.6
CPOD120BXK	120,000	380	50	1	13.8/6.9	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.6/397	43/19.5
CPOD120B3X	160,000	230/460	60	3	2.8/1.4	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	14.5/370	41/18.6
CPOD120B3XK	120,000	380	50	3	5.2/2.6	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.6/397	43/19.5
CPOD180BX	210,000	115/230	50/60	1	14.2/7.1	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.8/400	43/19.5
CPOD180BXK	180,000	380	50	1	14.2/7.1	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.6/397	43/19.5
CPOD180B3X	210,000	230/460	50/60	3	3.8/1.9	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.8/400	43/19.5
CPOD180B3XK	180,000	380	50	3	4.1/2.0	1-1/2" FPT	1-1/2" FPT	9.4/240	6.5/165	15.6/397	43/19.5
CPOD240BX	240,000	115/230	60	1	16.2/8.1	2" FPT	1-1/2" FPT	8.6/220	10/250	15.9/400	60/27.2
CPOD240BXK	240,000	380	50	1	13.8/6.9	2" FPT	1-1/2" FPT	8.6/220	10/250	15.9/400	60/27.2
CPOD240B3X	240,000	230/460	60	3	4.0/2.0	2" FPT	1-1/2" FPT	8.6/220	10/250	15.9/400	60/27.2
CPOD240B3XK	240,000	380	50	3	2.2/1.1	2" FPT	1-1/2" FPT	8.6/220	10/250	15.9/400	60/27.2
CPOD320B3X	320,000	230/460	60	3	6.0/3.0	2" FPT	2" FPT	8.6/220	11/280	15.9/400	85/38.6
CPOD360B3XK	360,000	380	50	3	6.4/3.2	2" FPT	2" FPT	8.6/220	11/280	16.1/410	89/40.5
CPOD500BX	500,000	115/230	60	1	19.2/9.6	2-1/2" FPT	2-1/2" FPT	10/250	11/280	18/460	110/50
CPOD500B3X	500,000	230/460	60	3	6.4/3.1	2-1/2" FPT	2-1/2" FPT	10/250	11/280	18/460	110/50
CPOD800B3X	800,000	230/460	50/60	3	9.6/4.8	2-1/2" FPT	2-1/2" FPT	10/250	11/280	18/460	110/50

*Circulating pumps rated at 40 feet head.

Notes:
- When operating a 50/60 Hz pump at 50 Hz, the flow rate will decrease approximately 17%, while the head capability will drop as much as 30%.
- Hose fittings are not included with pumps and must be ordered separately.

Seawater Pumps – Interpreting Model Numbers

P	1200	B	X	-SP
PMA: Magnetic drive, air-cooled motor P: Pump, mechanical seal, air-cooled motor PH: Mechanical seal, high head only	Capacity in gallons per hour	B: Bronze Head No Letter: Plastic Head	CK: 220V, 50Hz X: 115/230V, 50/60 Hz 3X: 230/460V, 3-phase, 50/60 Hz	SP: Self priming No Letter: Not Self Priming

Circulating Pumps – Interpreting Model Numbers

CP	O	D	240	B	3X
Circulating Pump	O: Open Motor E: Enclosed Motor	D: Direct Drive M: Magnetic Drive	Capacity BTU/hr X 1,000	B: Bronze Head P: Plastic Head	X: 115/230V, 50/60 Hz 3X: 230/460V, 50/60 Hz

L–0420 Rev. 20080829

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Dometic Cruisair®

Auxiliary Heat Modules for DX & TW

Providing Heat In Extremely Cold Conditions

HMDL2-7 auxiliary heat module shown

Cruisair auxiliary heat modules provide additional heating when the boat is in extremely cold seawater. They also permit specific compartments on the boat to be heated when the circulated water system is in the cooling mode.

The modules are installed on the discharge side of the air handler. Safety features include: fintube heating elements with relatively low surface temperature, high temperature insulation on interior of unit, and two-stage thermal protection.

Air handling units are available with integral electrical heat (CHBB Type).

Key Benefits

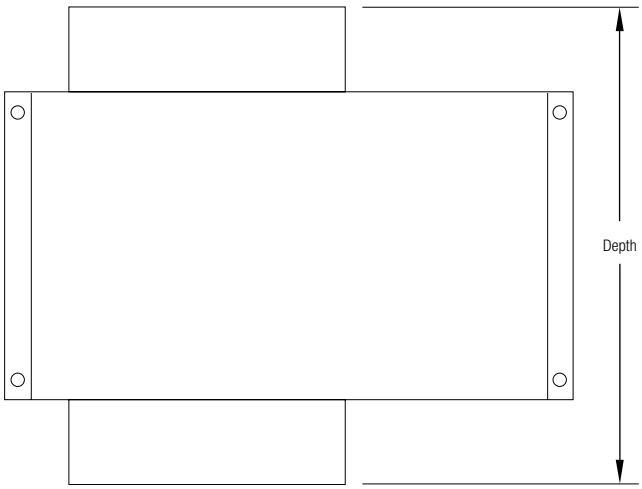
- Electric resistance heat modules
- 1-4 KW models
- 115V & 230V power
- Fintube heating elements
- Two-stage thermal protection
- High temperature insulated interior
- Installed in flexible or built-in ductwork
- Used with ducted air handlers

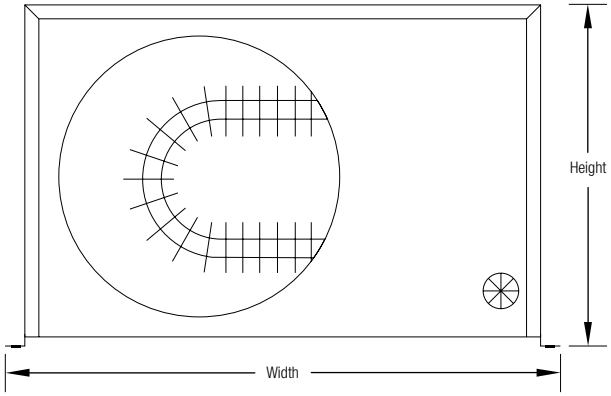
Technical Specifications for Auxiliary Heat Modules

Model	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Amps	Volts	Watts	Weight (lb/kg)	Fits Duct Size
HMDL1-5	7/180	12/305	10/255	9.0	115	1 kW	4.5/2.0	5"
HMDL1C-5	7/180	12/305	10/255	4.2	230	1 kW	4.5/2.0	5"
HMDL1.5-6	7.6/195	13.25/335	10/255	13.5	115	1.5 kW	5/2.3	6"
HMDL1.5C-6	7.6/195	13.25/335	10/255	6.3	230	1.5 kW	5/2.3	6"
HMDL2-7	7.6/195	13.25/335	10/255	18.0	115	2 kW	5/2.3	7"
HMDL2C-7	7.6/195	13.25/335	10/255	8.3	230	2 kW	5/2.3	7"

Seawater Pumps – Interpreting Model Numbers

HM	D	L	2	C	-5
Heat Module	Ducted	L: Line Load (No Relay)	Power in kW	C: 230V No Letter: 115V	Duct Size In Inches





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L–0622 Rev. 20080829

Dometic Cruisair®

Tempered Water Accessories

For Improved Efficiency of TW AC Systems

Products shown (left to right): Pressure Regulator/Relief Valve, 2-Gal. Expansion Tank, Backflow Preventer, and Spirovent

The Spirotop is an automatic air bleed valve which can be installed at the highest point in the circulated water system, on individual air handlers where the manual bleed is difficult to access, or any local high point which makes bleeding the system difficult. Spirotops help simplify initial bleeding of the circulated water system, and also prevent air traps forming anywhere they are installed. The unique separate float chamber design helps prevent leaks due to valve contamination. Connection size is 1/2" FPT.

The **Spirovent** is a device that removes entrapped air from the circulated water loop. A specially designed wire mesh will remove "micro-bubbles" of air that are carried with the moving water.

When properly sized and installed, the Spirovent will actually bleed the entire system in a short period of time. This works because the water that exits the Spirovent is so devoid of air that it will pick up air from other parts of the loop and carry it back to the Spirovent to be removed.

Spirovents work best when installed at low pressure points in the system, where the water flow rate is near or below the design rate of the Spirovent. Typical locations are the inlet of the circulation pump, or in the return line of the highest group of air handlers, where it also doubles as a main system bleed. Two different capacities of Spirovents are available; 15 gpm (60,000 BTU/hr) and 30 gpm (120,000 BTU/hr). Spirovents can be used in parallel for larger capacity systems.

Fill Components

A back-flow preventer and a pressure regulator/relief valve are recommended for the fill connection of the circulated water loop.

(Continued on reverse side)

Key Benefits

Spirotop and Spirovent

- Automatic air bleed
- Simplifies bleeding of circulated water system
- Spirovent removes entrapped air carried in water
- Bronze and stainless construction

Fill Components

- Backflow preventer protects the fresh water system from contamination
- Pressure regulator/relief valve allows automatic, safe filling of system
- Bronze and stainless construction

Seawater Strainer

- Sizes from 1/2" to 3" available
- Bronze and stainless construction

Expansion Tanks

- Flexible internal diaphragm maintains safe circulated water loop pressures
- Capacities up to 60 tons

ISO 9001:2000

L–0625 Rev. 20080829

Cruisair®

The back-flow preventer protects the fresh water system from contamination by the loop water through the fill valve.

The pressure regulator reduces the fresh water system high pressure to the lower circulated water system pressure. The regulator is set at 15 psi and is adjustable from 10 to 25 psi. The integrated pressure relief valve protects the loop water system from damage due to an over pressure situation.

Seawater Strainer

All Cruisair systems must have a suitable seawater strainer. Sizes are available from 1/2" to 3" female NPT, with flow rates as large as 12,000 gph. Strainers are bronze and stainless steel with glass filter bowls.

Expansion Tank

The flexible bladder expansion tank is required to maintain circulated water loop design pressure over a wide range of water temperatures. Tank is preset at 12 psi, and has an air valve to adjust pressure as needed.

Tank may be installed horizontally or vertically. It should be piped into the suction side of the circulation pump, typically at the same location as the fill assembly. Tank connection is 1/2" male NPT.

Required expansion tank size is based on the total air handler capacity. Sizes of 120,000 to 720,000 BTU/hr are available.

Technical Specifications for Expansion Tanks

Model	Description	Capacity (BTU/hr)	Height (in/cm)	Diameter (in/cm)	Connection Size	Weight (lb/kg)
EXT120	Expansion Tank	120,000	11.5/29.2	8.0/20.3	1/2" MPT	5/2.3
EXT240	Expansion Tank	240,000	14.0/35.6	11.0/27.9	1/2" MPT	9/4.1
EXT360	Expansion Tank	360,000	23.0/58.4	11.0/57.9	1/2" MPT	14/6.4
EXT720	Expansion Tank	720,000	23.0/58.4	16.0/40.6	1/2" MPT	18/8.2

Technical Specifications for Seawater Strainers

Model	Description	Capacity (gph)	Height (in/cm)	Width (in/cm)	Connection Size	Weight (lb/kg)
ST1N	Seawater Strainer	1,200	8.5/21.6	6.7/17.0	1" FPT	6/2.7
ST1-1/4N	Seawater Strainer	2,000	10.5/26.7	6.7/17.0	1-1/4" FPT	6/2.7
ST1-1/2N	Seawater Strainer	3,600	10.8/27.4	7.9/20.1	1-1/2" FPT	10/4.5
ST2N	Seawater Strainer	4,000	13/33.0	7.9/20.1	2" FPT	12/5.5
ST2-1/2N	Seawater Strainer	7,800	15.6/39.6	7.9/20.1	2-1/2" FPT	14/6.4
ST3N	Seawater Strainer	12,000	18.6/47.2	7.9/20.1	3" FPT	17/7.7

Technical Specifications for Spirotop & Spirovent

Model	Description	Capacity (BTU/hr)	Height (in/cm)	Width (in/cm)	Connection Size	Weight (lb/kg)
1060901	Spirotop	—	4.5/11.4	2.5/6.3	1/2" FPT	2/0.9
1060912	Spirovent, 15 gpm	60,000	7.8/19.7	3.5/8.9	1-1/4" FPT	4/1.8
1060915	Spirovent, 30 gpm	120,000	9.0/22.9	3.5/8.9	1-1/2" FPT	4/1.8
DSV1.5/180	Dual Spirovent Assembly	180,000	9.8/24.8	16.0/40.1	1-1/2" FPT	12/5.5
DSV2/240	Dual Spirovent Assembly	240,000	9.8/24.8	17.0/43.2	2" FPT	12/5.5

Technical Specifications for Fill Components

Model	Description	Height (in/cm)	Width (in/cm)	Connection Size	Weight (lb/kg)
1070200	Backflow Preventer	4.5/11.4	2.3/5.7	1/2" FPT	2/0.9
1070201	Pressure Regulator/Relief Valve	7.0/17.8	3.8/9.5	1/2" FPT	4/1.8
1070030	Pressure Guage 0-30 psi	3.5/8.9	2.8/7.0	1/4" FPT	1/.05
BV1/2	Ball Valve, Bronze	2.3/5.7	1.5/3.8	1/2" FPT	2/0.9
1053505	Brass Nipple Close	—	—	1/2" FPT	0.5/0.2

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L–0625 Rev. 20080829

Dometic Cruisair®

Variable Frequency Drive

For Tempered Water AC Systems

VFD unit shown

A variable frequency drive (VFD) eliminates the large starting inrush current of the compressor by ramping up voltage and frequency in a controlled time period. This allows running on limited dockside power, and also protects the generator from overload.

In addition to eliminating inrush, the VFD will also run a compressor at 60Hz, even when input power is 50Hz, which allows full BTU capacity performance (230V only). The VFD also protects the compressor by monitoring input voltage and output current, and will shut down if a power supply problem is sensed.

The VFD unit produces a modified sine wave output for smooth acceleration and running, with precise frequency resolution. It is designed to operate in extreme environments, such as an engine room. It can withstand harsh vibrations, temperatures up to 122° F (50° C), and a maximum relative humidity of 93%. However, the enclosure is ventilated, and must be kept dry. Any direct water contact can damage the unit.

Built-in noise filters are standard and the VFD is CE approved. The Square D/ Telemecanique Altivar 31 VFDs incorporate a class A EMC filter into their design. This helps prevent high frequency noise and harmonic distortions from affecting the AC power supply to which the drives are connected. If you have an application or a power system that requires even lower noise and lower distortion, then we recommend you purchase then class B EMC filters specifically designed to fit with the entire family of Altivar 31 VFDs.

Key Benefits

- Eliminates compressor start inrush current.
- 208/230V 3 phase output, with 1-phase or 3-phase input.
- Full 60Hz capacity even at 50Hz input (230V only).
- Low electronic noise, CE approved.
- 380/480V 3-phase models available.

(Continued on reverse side)

ISO 9001:2000

L–0814 Rev. 20090313

Cruisair®

A LED display allows the user to monitor operation and faults. The VFD is pre-programmed from the factory and no further setup is required. Power cables are available through special order.

VFD Selection:

The unit must have a 3-phase compressor to operate with a VFD. Each unit will need a dedicated frequency drive, which is selected to handle the compressor power.

On 208/230V systems, the VFD can "convert" single-phase input power to 3-phase output, but at a reduced capacity.

Technical Specifications for Variable Frequency Drive

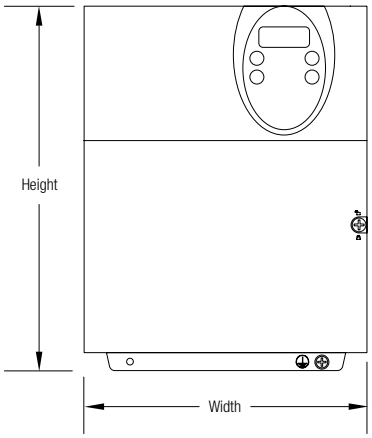
Model	Item Number	Dimensions (in/mm)			Weight (lb/kg)	Comp Voltage	Max AMP Rating	
		Height	Width	Depth			3Ph Input	1Ph Input
VFD 230V 17.5A	763300006	7.2/184	5.5/14	5.9/150	5.2/2.4	230V	17.5	10.1
VFD 230V 27.5A	763300007	9.1/232	7.1/180	6.7/170	10.4/4.7	230V	27.5	15.9
VFD 230V 33.0A	763300008	9.1/232	7.1/180	6.7/170	10.4/4.7	230V	33.0	19.1
VFD 230V 54.0A	763300009	13.0/330	9.7/245	7.5/190	19.9/9.0	230V	54.0	31.2
VFD 230V 66.0A	763300010	13.0/330	9.7/245	7.5/190	19.9/9.0	230V	66.0	38.1
VFD 460V 9.50A	763300011	7.2/184	5.5/14	5.9/150	5.2/2.4	460V	9.5	N/A
VFD 460V 14.3A	763300012	9.1/232	7.1/180	6.7/170	10.4/4.7	460V	14.3	N/A
VFD 460V 17.0A	763300016	9.1/232	7.1/180	6.7/170	10.4/4.7	460V	17.0	N/A
VFD 380V 14.3A 50Hz	763300016	9.1/232	7.1/180	6.7/170	10.4/4.7	380V	14.3	N/A
VFD 380V 17.0A 50Hz	763300018	9.1/232	7.1/180	6.7/170	10.4/4.7	380V	17.0	N/A
VFD 380V 27.7A 50Hz	763300019	13.0/330	9.7/245	7.5/190	19.9/9.0	380V	27.7	N/A

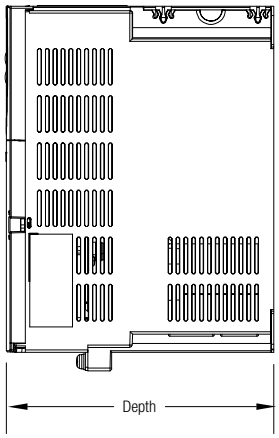
Notes:

- 208-230V VFDs will produce a 60Hz output, even with a 50Hz input. This allows 60Hz compressors to produce full capacity in 50Hz systems.
- High voltage (380-480V) VFDs can be used at 380-420V 50Hz, or 440-480V 60Hz. At these higher voltages the VFD output frequency should by the same as the input.

How to choose the right frequency drive:

- Chiller compressor must be 3 phase.
- Multiply the chiller's reverse cycle amps by 1.10 (10% safety factor).
- Choose frequency drive from the Comp Voltage and Max AMP Rating columns depending on compressor voltage and the phase of the input power supply, respectively.





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L–0814 Rev. 20090313

Dometic Cruisair®

Pump Packages for Chillers

Convenient Solutions for Simpler Installations

P700 Centrifugal Pump
Package shown

Pump packages reduce the installation time of chilled-water systems by combining several necessary components in one convenient package. The packages include a chilled-water pump, expansion tank, pump drain pan, dual-scale (psi/kPa) pressure gauge, and fill assembly. The fill assembly includes a hose connection, ball valve, and pressure-reducing valve.

The cushion of air in the expansion tank allows the water to expand and contract with temperature fluctuations. This relieves pressure that might otherwise result in leaks.

The latest design includes a bladder-style expansion tank. Without the bladder, air in the expansion tank would gradually dissolve into the water and be bled off. Eventually, the protective cushion of air would be gone.

The pressure gauge is connected to an inlet pipe on the pump for the most accurate reading of system return water pressure.

Key Benefits

- Convenient packaging of multiple essential components simplifies installation.
- Bladder-style expansion tank protects against loss of air cushion.
- Dual-scale pressure gauge is convenient for US and international customers.
- Pressure gauge connected to inlet pipe gives most accurate reading.

Technical Specifications for Pump Packages

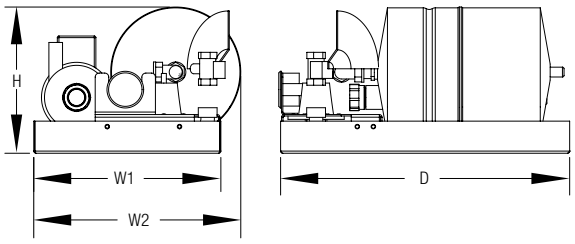
Model	PMA1000	PMA1000C	PMA1000CK	P120	P120Z		P700	P700Z	
Voltage (V/Hz/Phase)	115/60/1	230/60/1	240/50/1	115/60/1	230/50/1	230/60/1	115/60/1	230/50/1	230/60/1
Amps (FLA)	2.1	1.0	1.1	4.9	3.5	3.5	7.2	3.6	3.6
Recommended Applications: Total Air Handler Capacity (BTU/hr)	16-23	16-23	16	24-48	17-23	24-48	49-120	24-84	49-120
Height (in/mm)	9.2/233	9.2/233	9.2/233	9.2/233	9.5/241	9.5/241	9.5/241	9.5/241	9.5/241
Pan Width, W1 (in/mm)	11.7/297	11.7/297	11.7/297	11.7/297	15.4/391	15.4/391	15.4/391	15.4/391	15.4/391
Overall Width, W2 (in/mm)	12.9/327	12.9/327	12.9/327	12.9/327	17.1/434	17.1/434	17.1/434	17.1/434	17.1/434
Depth, D (in/mm)	18/457	18/457	18/457	18/457	18/457	18/457	18/457	18/457	18/457
Chilled Water “in” connections, female NPT	1" female	1" female	1" female	1.25" female	1.25" female	1.25" female	1.25" female	1.25" female	1.25" female
Chilled Water “out” connections, NPT	1/2" male	1/2" male	1/2" male	1" female	1" female	1" female	1" female	1" female	1" female
Net Weight, (lbs/kg)	33/14	33/14	33/14	48/21	48/21	48/21	49/22	49/22	49/22
Gross Weight, (lbs/kg)	47/21	47/21	47/21	62/28	62/28	62/28	62/28	62/28	62/28

Notes:

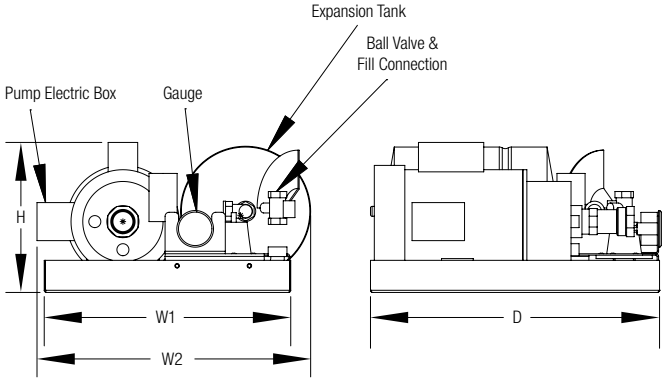
- Dimensions are +/- 0.125 inches.

Safety note:

- Pump packages do NOT include backflow preventers. If the chilled-water fill assembly might be supplied by a potable water supply, then a reduced pressure zone (RPZ) backflow preventer should be installed between the fill assembly and the potable water supply to prevent contamination of the potable water.



PMA1000



P120/P700

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L–2565 Rev. 20090220

Dometic Cruisair®

Discharge & Return Air Grilles

Aluminum, Wood, & Plastic Styles

Assorted aluminum, wood, and plastic grilles shown

Cruisair discharge and return air grilles are available in a wide assortment of dimensions, styles, and materials to blend with any yacht's interior.

The vanes of discharge grilles are secured in nylon bushings for easy dependable positioning. RA-type return air grilles have one row of fixed vanes. Wood return air grilles have a lint screen which can be removed for cleaning.

Round plastic discharge grilles are also offered in several colors with and without shut-off dampers.

Micro-Particle Anti-Allergenic air filters, designed to capture diesel smoke, dust, lint, bilge odors, and pet dander, are available for Cruisair AC systems. These filters mount to the unit's evaporator coil and are eight times more efficient than standard filters. Due to the high efficiency of these new filters, they should be inspected and replaced at frequent intervals. When using a filter on the unit, do not also have a filter on the grille, as that would cause too much restriction of the airflow.

Key Benefits

- Large selection and variety of grilles
- Standard and custom materials complement all yacht interiors.
- Custom sizes available for any application.

Wood Frame Grilles

- Pop out louver panels with return air grilles have easy to clean replaceable filters.
- Supply air grilles have double-deflection, moveable louvers available in anodized bronze or aluminum finish.

Aluminum Grilles

- Supply air grilles have adjustable louvers to direct air flow.
- Return air grilles feature durable, fixed-vane louvers.
- Return air grilles are supplied with or without filters depending on system requirements.
- Painted grilles are sprayed with polyurethane.
- Multiple color selection.

Grille Sizing Per Unit

Unit Capacity in BTU/hr	Return		Supply	
	Sq. In.	Sq. cm	Sq. In.	Sq. cm
4,000	64	412.9	32	206.5
5,000	64	412.9	32	206.5
6,000	70	451.6	35	225.8
7,000	80	516.2	45	290.3
9,000	98	632.3	49	316.1
10,000	100	645.2	60	387.1
12,000	130	838.8	70	451.6
16,000	160	1032.3	80	516.2
18,000	200	1290.4	100	645.2
24,000	240	1548.5	140	903.3
30,000	350	2258.2	170	1096.8
36,000	360	2322.7	196	1264.6
48,000	480	3097.0	256	1651.7

Notes:

- Supply and Return Air Grille minimums are required to achieve rated capacity.
- Custom sizes and custom painted grilles are available. Contact Marine Air Systems for pricing and availability.

Product Characteristics

Wood Frame Grilles

- Cut-out dimensions are the nominal grille size, i.e., a 10" X 5" VH requires a 10" x 5" (25.4cm x 12.7cm) cut out.
- Outside frame dimensions are 0.9375" +/- 0.0625" (2.4cm +/- 0.16cm) lager than nominal grille size, i.e., a 10" X 5" VH has overall dimensions or 10.9375" X 5.9375" (27.8cm x 15.1cm).
- Depth of grilles: VH is 1.375" (3.5cm), VML is 1.875" (4.8cm), RA is 0.875" (2.2cm), measured from back of frame.
- Frame (flange) dimensions are 0.563" (1.4cm) on all sides.

Aluminum Grilles

- Cut-out dimensions for the TH, TV, and TRA style grilles are 0.375" (1.0cm) smaller than the nominal grille size, i.e., a 10" X 5" TH requires a 9.625" X 4.625" (24.4cm X 11.7cm) cut-out. The TRAF style grilles are 0.125" (0.3cm) smaller.
- Outside frame dimensions are 0.875" (2.2cm) larger than the nominal grille size, i.e., a 10" X 5" TH has overall dimensions of 10.875" X 5.875" (27.6cm x 14.9cm).
- Depth of grilles: TH and TRA are 0.875" (2.2cm), TRAF is 1" (2.5cm), measured from back of frame.
- Frame (flange) dimension is 0.625" (1.6cm) on all sides.

Plastic Grilles (Circular)

- Depth of grilles: 2SA is 1.31" (3.3cm), 3SA is 2.16" (5.5cm), 4SA is 2.38" (6.0cm), measured from back of frame.
- Frame (flange) dimensions: 2SA is 2.75" (7.0cm), 3SA is 3.875" (9.8cm), 4SA is 5.50" (14.0cm), in diameter.
- Cut-out dimensions are 2.0" (5.1cm), 3.0" (7.6cm), and 4.0" (10.2cm) respectively, in diameter.
- A special adapter is available to use the 4SA with 3.0" (7.6cm) ducting.

Grille Dimensions

Wood Frame Grilles		
Supply Air, Primary	**Supply Air, Secondary Closeable**	
Model VH	**Model VML**	
7" X 7" 10" X 5" 12" X 5" 14" X 4" 14" X 5" 14" X 6" 16" X 4"	4" X 4" 6" X 4" 8" X 4" 8" X 8" 10" X 4" 12" X 4"	
Supply Air, Secondary	**Return Air with Filter**	
Model VH	**Model RA**	
4" X 4" 6" X 4" 8" X 4" 10" X 4" 12" X 4"	7" X 7" 8" X 8" 8" X 10" 11" X 8" 12" X 12"	12" X 14" 14" X 7" 14" X 10" 14" X 12" 16" X 9"

Plastic Grilles (Round and Closeable Supply Air Grilles)			
Model	**2SA**	**3SA**	**4SA**
Duct Size	2"	3"	4"

Aluminum Grilles			
Supply Air		**Return Air**	
Model TH	**Model TV**	**Model TRAF** (with Filter); **Model TRA** (without Filter)	
4" X 4" 7" X 7" 8" X 4" 10" X 4" 10" X 5"	10" X 4" 12" X 3" 12" X 4" 12" X 5" 12" X 6" 14" X 4" 14" X 5" 14" X 6" 14" X 7" 16" X 4" 18" X 3" 20" X 5" 24" X 3"	8" X 11" 10" X 4" 11" X 7" 11" X 8" 11" X 12" 12" X 12"	14" X 7" 14" X 10" 14" X 12" 16" X 9" 20" X 5" 22" X 7" 28" X 6"

Note:

- Multiply the dimensions above by 2.54 to calculate for centimeters.

Dealer:

Environmentally Responsible

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